



# Sociodemographic Determinants of the Level of Knowledge of Prostate Cancer and Prostate Cancer Screening Services among Patients Attending a Secondary Health Facility in Southern Nigeria

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## Abstract

Background: Late presentation of prostate cancer is rampant in sub-Saharan Africa with attendant high morbidity and mortality. A good knowledge level of prostate cancer and prostate cancer screening services is paramount in preventing late presentation and its management challenges. This study assesses the sociodemographic factors affecting the knowledge level of prostate cancer and prostate cancer screening tools and services among patients attending a secondary health facility in southern Nigeria. Methods: This was a descriptive cross-sectional study amongst men aged 40 years and above attending the general outpatient, surgical outpatient, and medical outpatient clinics in Central Hospital, Auchi, southern Nigeria. A pretested and structured questionnaire was used. Sociodemographic determinants of the knowledge level of prostate cancer and prostate cancer screening were determined based on responses to the questionnaire. Data were analyzed using SPSS version 21. The level of significance was set at 0.05. Results: A total of 143 men participated in this study. Respondents' age range was between 40 to 98 years with a mean age of  $58.91 \pm 13.55$  years. Overall, 55(38.5%) respondents had good knowledge of prostate cancer while 43(30.1%) had good knowledge of prostate cancer screening. A third (31.2%) think they are at risk of developing prostate cancer, only 9.1% had been screened for prostate cancer. In all, 86.7% of respondents were willing to know more and to be screened in the future. Whereas, age, occupation, average monthly income, and level of education were the statistically significant sociodemographic predictors of level of knowledge of prostate cancer, the only factors that influenced the level of knowledge of prostate cancer screening services were occupation and educational status. Conclusion: Knowledge level about prostate cancer disease and prostate cancer screening services was low among men attending outpatient clinics in Auchi Central Hospital. Respondents' age, occupation, average monthly income, and level of education significantly affect their prostate cancer knowledge level while knowledge of prostate cancer screening services was determined by the occupation and educational status of the respondents. Interventional campaigns aimed at increasing the knowledge level about prostate cancer and screening services are urgently required.

**Keywords:** Prostate cancer; Sociodemographic determinants; Prostate cancer screening; Secondary health facility; Southern Nigeria.

## 1. Introduction

Prostate cancer is one of the commonest cancers in elderly men globally and a principal cause of cancer-related morbidity and mortality among men worldwide [1, 2]. Presently, prostate cancer is regarded as a public health epidemic with the highest incidence rate among sub-Saharan Africans [3]. A systematic review of prostate cancer in Africans by Adeloje, *et al.* [4], gave an approximate overall pooled incidence rate of 22.0 per 100,000 population. In Nigeria, the hospital prevalence of prostate cancer is about 61.3 per 100,000 patients [5].

Despite the availability of prostate cancer screening tools such as digital rectal examination (DRE) and the prostate-specific antigen (PSA) test, the majority of patients with prostate cancer in sub-Saharan Africa present to health facilities with locally advanced or metastatic disease [6]. The poor utilization of these readily accessible prostate cancer screening services has been attributed to many factors such as fears of a positive result, ignorance, level of knowledge, and attitude towards prostate cancer and prostate cancer screening [7, 8]. Also, sociodemographic factors such as age, occupation, average monthly income, and educational levels have been reported as significant determinants of prostate cancer health-seeking behavior [9, 10]. Studies have also implicated the perceived risk of prostate cancer and prostate cancer screening methods as factors that play significant roles in the utilization of prostate cancer screening services [8, 11]. An adequate level of knowledge about a disease condition is usually linked to better health-seeking attitude and behavior [3, 4, 8, 10].

In recent times, many public awareness campaigns and sensitizations at both the community and hospital levels have been carried out to enhance early detection and management of prostate cancer disease in southern Nigeria. The majority of the works done to evaluate the outcome of this awareness and sensitization exercises were carried out

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either at the community or tertiary health facilities. This study, therefore, aimed to assess the sociodemographic factors affecting the knowledge level of prostate cancer disease and screening services among men attending a secondary health facility in southern Nigeria.

## 2. Methodology

The study was carried out between October 2019 and June 2020 in the surgical, medical and general outpatient departments of Central Hospital, Auchi, a 52-bedded secondary health facility in southern Nigeria.

The study population comprised of men, who were at least 40 years of age attending the surgical, medical, and general outpatient clinics. Men who are already on treatment for prostate cancer were, however, excused from this study.

It was a descriptive cross-sectional study. A sample size of 73 was calculated using a hospital prevalence rate of 5%, with the tolerable margin of sampling error set at 5%, and an assumed non-response rate of 10%.

All the respondents gave written informed consent before responding to the questions. The Ethics Committee of the Edo State Hospital Management Board gave approval for the study.

Data were collected using an interviewer-administered structured questionnaire that was pretested at the general outpatient clinic of a nearby government-owned secondary health facility. The survey questionnaire sought information about sociodemographic characteristics of the respondents, knowledge about prostate cancer and prostate cancer screening tests and services, perception of risk towards prostate cancer, willingness to undergo prostate cancer screening, and sources of information regarding prostate cancer and prostate cancer screening. The sociodemographic questions concentrated on the personal characteristics of the respondents such as age, religion, educational level, marital status, and occupation. Respondents' knowledge was tested by asking questions relating to symptoms, risk factors, and screening tests for prostate cancer.

Questionnaires were checked for mistakes at the end of the data collection. Data were analyzed with the Statistical Package for the Social Sciences (SPSS) software version 21. Prostate cancer knowledge level was rated on a two-point scale: poor knowledge level (< 5) or good knowledge level ( $\geq 5$ ). A total of ten questions were asked. Right answers were given one point each and wrong answers scored zero points. The maximum attainable score was ten. Prostate cancer screening knowledge level was also rated on a two-point scale: poor knowledge level of prostate cancer screening (< 3) or good knowledge level of prostate cancer screening ( $\geq 3$ ). A total of six questions were asked. Correct answers were awarded one point each while incorrect responses given zero points. The maximum attainable score for the knowledge level of prostate cancer screening was six. Frequency distribution tables and charts were generated from variables. Cross tabulation and test statistics were carried out where needed. A p-value of less than 0.05 was regarded as statistically significant.

## 3. Results

One hundred and forty-three questionnaires administered were completed and analyzed giving a response rate of 100%. The mean age of the participants was  $58.91 \pm 13.55$  with a range of 40 to 98 years. The majority of the respondents were married (90.1%), and are farmers or artisans (54.5%). In all, 61.6% of the study participants had at least a secondary level of education. The sociodemographic characteristics are as shown in [Table 1](#).

**Table-1.** Sociodemographic characteristics of participants

	<b>Frequency (n=143)</b>	<b>Percentage (%)</b>
<b>Age range</b>		
40-49 years	45	31.5
50-59 years	31	21.7
60-69 years	33	23.1
70-79 years	23	16.1
80 and above	11	7.7
<b>Religion</b>		
Christianity	74	51.7
Islam	66	46.2
Traditional	2	1.4
None	1	0.7
<b>Marital status</b>		
Single	3	2.1
Married	129	90.2
Widowed	10	7.0
Separated	0	0.0
Divorced	1	0.7
<b>Occupation</b>		
Farmer	39	27.3
Artisan	39	27.3
Civil servant	27	18.9
Pensioner	31	21.7
Business	7	4.9

Monthly income		
Less than 10,000 Naira (< 25 USD)	17	11.9
10-20,000 Naira (25–50 USD)	42	29.4
21-50,000 Naira (51 – 130 USD)	37	25.9
51-100,000 Naira (131 – 260 USD)	37	25.9
More than 100,000 Naira (> 260 USD)	10	7.0
Level of education		
None	20	14.0
Primary	35	24.5
Secondary	41	28.7
Tertiary	47	32.9

Ninety-two (64%) out of the 143 participants have heard of prostate cancer while a little above one-third (36%) have not (Figure 1). Of the 92 who have heard of prostate cancer, the source of information was mostly from the media (43.5%, n=40), friends (32.6%, n=30), and relatives (12%, n=11). Only 12% (n=11) of the participants knew about prostate cancer from health workers.

Concerning the level of knowledge about prostate cancer, most of the study participants (61.5%) have poor level of knowledge while 35 (38.8%) have good level of knowledge of prostate cancer as displayed in Figure 2.

Figure-1. Awareness of Prostate Cancer

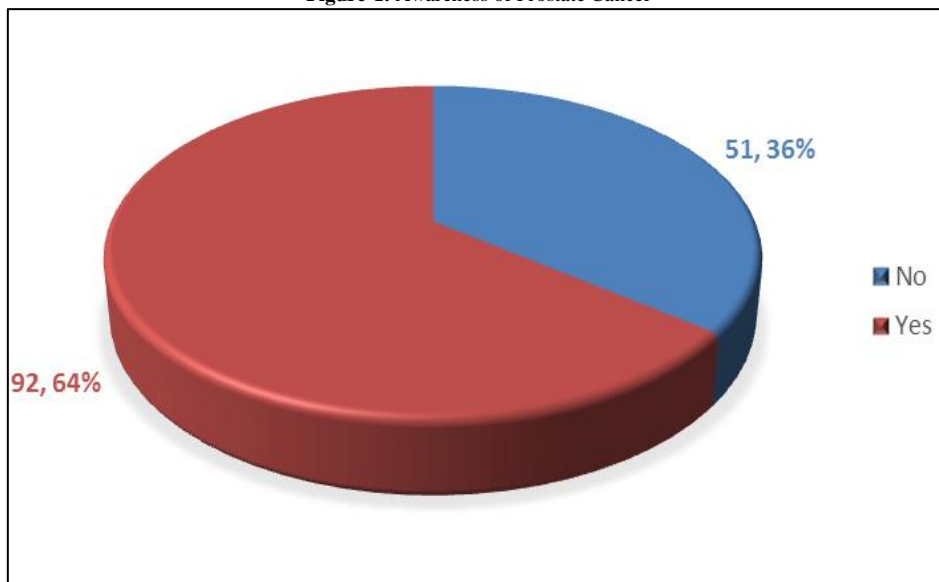
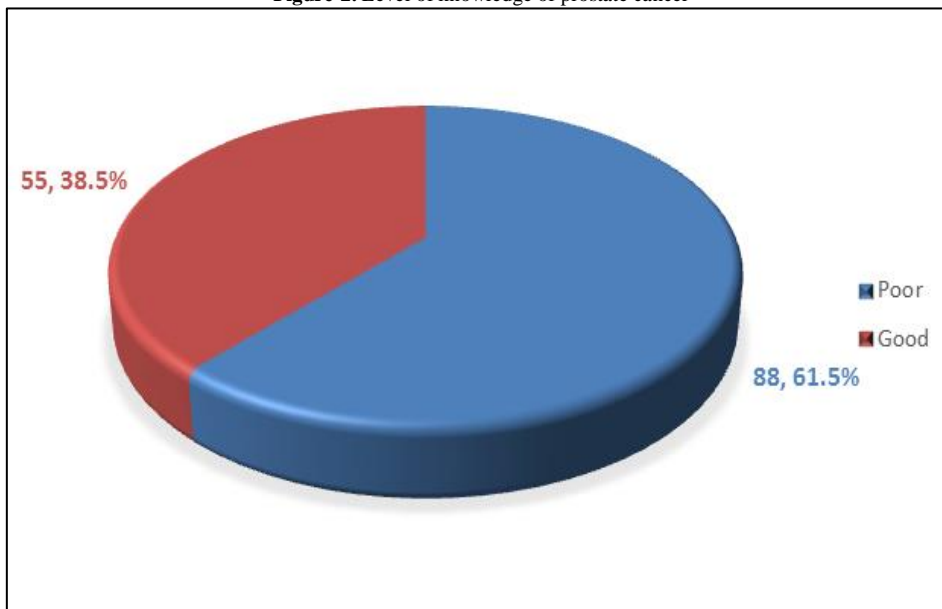
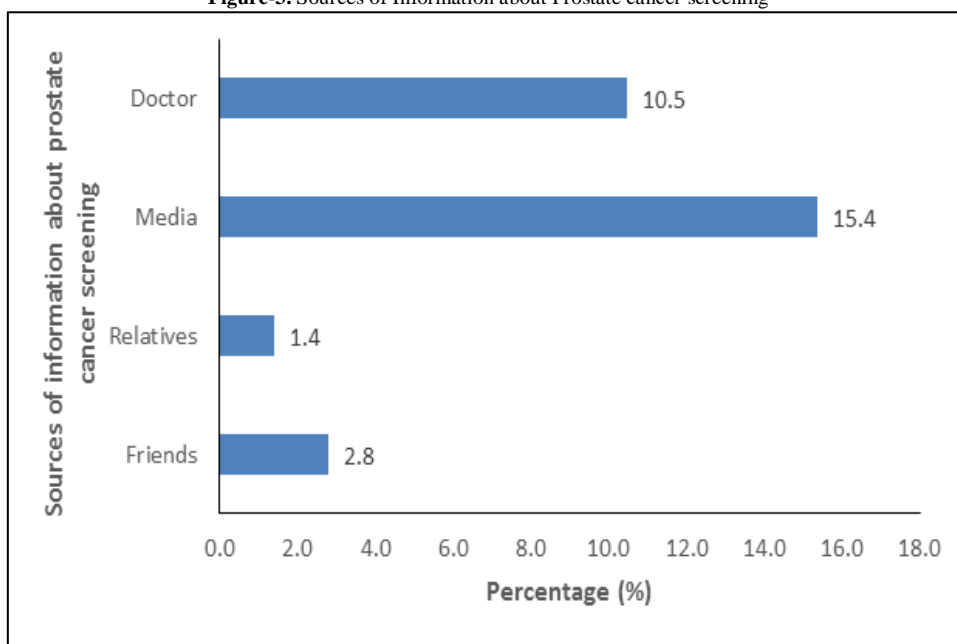


Figure-2. Level of knowledge of prostate cancer



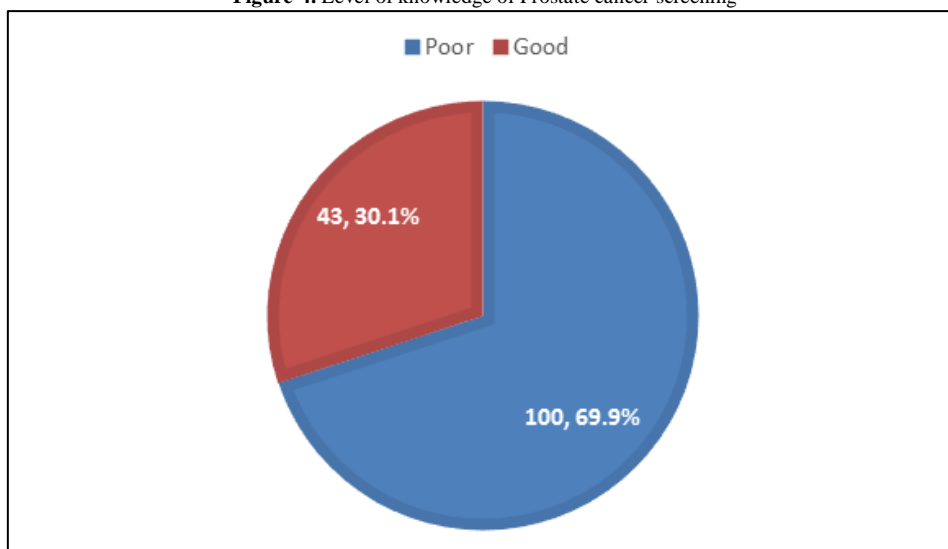
On prostate cancer screening, majority of the respondents (n = 100, 69.9%) have not heard of prostate cancer screening while only 43 (30.1%) have heard of prostate cancer screening. As shown in figure 3, most of the 43 (30.1%) participants who have heard of prostate cancer screening got the information from the news or social media.

Figure-3. Sources of Information about Prostate cancer screening



That said, only 43 (30.1%) of the patients have good level of knowledge of prostate cancer screening. Figure 4 shows the level of knowledge of respondents about prostate cancer screening.

Figure-4. Level of knowledge of Prostate cancer screening



Regarding the association between the sociodemographic characteristics of the respondents and their level of knowledge of prostate cancer, age, occupation, monthly income and the level of education were found to have significantly influenced the level of knowledge of the patients about prostate cancer (Table 2). Participants within the younger age bracket had a better knowledge of prostate cancer. Also, civil servants were found to have a comparatively higher level of knowledge about prostate cancer than the artisans and farmers. Furthermore, the level of knowledge about prostate cancer was found to increase in direct proportion with the respondents' level of education and their average monthly income. Marital status and religion had no statistically significant influence on the level of knowledge about prostate cancer.

On the impact of sociodemographic variables on the respondents' level of knowledge of prostate cancer screening, only occupation and level of education were found to have positively affected the knowledge level (Table 3).

Table-2. Association of sociodemographic characteristics with level of knowledge of prostate cancer

	Level of Knowledge		$\chi^2$	p
	Poor	Good		
<b>Age range</b>				
40-49 years	19(42.2)	26(57.8)	19.722	0.001
50-59 years	16(51.6)	15(48.4)		

60-69 years	24(72.7)	9(27.3)		
70-79 years	18(78.3)	5(21.7)		
80 and above	11(100.0)	0(0.0)		
<b>Religion</b>				
Christianity	40(54.1)	34(45.9)	5.947	0.058 <sup>†</sup>
Islam	46(69.7)	20(30.3)		
Traditional	2(100.0)	0(0.0)		
None	0(0.0)	1(100.0)		
<b>Marital status</b>				
Single	1(33.3)	2(66.7)	1.938	0.727 <sup>†</sup>
Married	79(61.2)	50(38.8)		
Widowed	7(70.0)	3(30.0)		
Separated	0(0.0)	0(0.0)		
Divorced	1(100.0)	0(0.0)		
<b>Occupation</b>				
Farmer	28(71.8)	11(28.2)	14.575	0.006
Artisan	26(66.7)	13(33.3)		
Civil servant	8(29.6)	19(70.4)		
Pensioner	21(67.7)	10(32.3)		
Business	5(71.4)	2(28.6)		
<b>Monthly income</b>				
Less than 10,000 Naira (< 25 USD)	12(70.6)	5(29.4)	10.663	0.031
10-20,000 Naira (25– 50 USD)	30(71.4)	12(28.6)		
21-50,000 Naira (51 – 130 USD)	24(64.9)	13(35.1)		
51-100,000 Naira (131 – 260 USD)	20(54.1)	17(45.9)		
More than 100,000 Naira (> 260 USD)	2(20.0)	8(80.0)		
<b>Level of education</b>				
None	19(95.0)	1(5.0)	20.872	0.000
Primary	26(74.3)	9(25.7)		
Secondary	24(58.5)	17(41.5)		
Tertiary	19(40.4)	28(59.6)		

†Fisher's Exact test

**Table-3.** Association of sociodemographic characteristics with level of knowledge of prostate cancer screening

	Level of Knowledge		$\chi^2$	P
	Poor	Good		
<b>Age range</b>				
40-49 years	28(62.2)	17(37.8)	6.555	0.161
50-59 years	19(61.3)	12(38.7)		
60-69 years	24(72.7)	9(27.3)		
70-79 years	19(82.6)	4(17.4)		
80 and above	10(90.9)	1(9.1)		
<b>Religion</b>				
Christianity	52(70.3)	22(29.7)	2.601	0.490 <sup>†</sup>
Islam	46(69.7)	20(30.3)		
Traditional	2(100.0)	0(0.0)		
None	0(0.0)	1(100.0)		
<b>Marital status</b>				
Single	2(66.7)	1(33.3)	1.103	0.914 <sup>†</sup>
Married	89(69.0)	40(31.0)		
Widowed	8(80.0)	2(20.0)		
Separated	0(0.0)	0(0.0)		
Divorced	1(100.0)	0(0.0)		
<b>Occupation</b>				
Farmer	30(76.9)	9(23.1)	18.134	0.001 <sup>†</sup>
Artisan	33(84.6)	6(15.4)		
Civil servant	10(37.0)	17(63.0)		
Pensioner	21(67.7)	10(32.3)		
Business	6(85.7)	1(14.3)		
<b>Monthly income</b>				
Less than 10,000 Naira (< 25 USD)	13(76.5)	4(23.5)	5.489	0.241
10-20,000 Naira (25– 50 USD)	32(76.2)	10(23.8)		
21-50,000 Naira (51 – 130 USD)	26(70.3)	11(29.7)		

51-100,000 Naira (131 – 260 USD)	25(67.6)	12(32.4)		
More than 100,000 Naira (> 260 USD)	4(40.0)	6(60.0)		
<b>Level of education</b>				
None	19(95.0)	1(5.0)	17.324	0.001
Primary	27(77.1)	8(22.9)		
Secondary	31(75.6)	10(24.4)		
Tertiary	23(48.9)	24(51.1)		

†Fisher's Exact test

**Table-4.** Association between sources of information about prostate cancer and level of knowledge of prostate cancer

	Level of Knowledge		$\chi^2$	P
	Poor	Good		
<b>Source PCA</b>				
Friend	12(40.0)	18(60.0)	4.582	0.620†
Read about it	5(38.5)	8(61.5)		
TV	5(33.3)	10(66.7)		
Radio	5(41.7)	7(58.3)		
Doctor	6(66.7)	3(33.3)		
Nurse	0(0.0)	2(100.0)		
Relative	6(54.5)	5(45.5)		

†Fisher's Exact test

No association was found between the level of knowledge of prostate cancer or prostate cancer screening and the sources of information (Table 4).

Only nine (6.3%) of the respondents have been screened for prostate cancer. One hundred and twenty-four (86.7%) of the participants are willing to know more about prostate cancer, prostate cancer screening, and to be screened. Nineteen respondents were not willing to have prostate cancer screening done and the principal reasons given were fear (n=10, 52.6%) and perceived high cost of screening (n=4, 25.1%).

#### 4. Discussion

This study assessed the sociodemographic determinants of the level of knowledge of prostate cancer and prostate cancer screening services among patients attending a secondary health facility in southern Nigeria.

The percentage of participants who are aware of prostate cancer (64%) and prostate cancer screening (30.1%) is generally low considering the sensitization and awareness created in the recent past. However, this is much higher than the findings of Awosan, *et al.* [12] who reported 5% awareness of prostate cancer and 1.3% awareness of prostate cancer screening services in Sokoto, Northern Nigeria. This finding is similar to other findings that have been recently reported in some parts of Nigeria, and other developing countries [13-17]. The poor knowledge level about prostate cancer and prostate cancer screening services is one of the factors responsible for the late presentation of patients with prostate cancer disease [6]. Although awareness and sensitization campaigns are currently ongoing in many sub-Saharan African communities and health facilities [9, 10, 14], the need to do more to increase the level of awareness of the disease and utilization of the screening services cannot be over-emphasized.

In this study, the level of knowledge of prostate cancer disease was associated with age, average monthly income, occupation, and educational level. The association between the level of knowledge and younger age may be due to better access to the various social media which constitute the major sources of information about prostate cancer in this study. This finding is however contrary to that of Bugoye and colleagues in Tanzania, who observed that the older age groups have a better knowledge of prostate cancer due to their increased risk of prostate cancer and prolonged exposure to awareness campaigns [13]. The association between the level of knowledge of prostate cancer and higher average monthly income is a pointer to the debilitating difficulty experienced by the poor in accessing health care services in sub-Saharan Africa. This finding is in keeping with several other reports from similar works done in sub-Saharan Africa [10, 12, 13].<sup>10,12,13</sup> Also, the farmers, artisans and the pensioners with significantly poor knowledge level may be due to the predominantly out-of-pocket healthcare financing generally experienced by this group. The association between the level of knowledge of prostate cancer disease and level of education may be due to the fact that the more educated respondents have a better paying jobs, better access to health-related information and healthcare services.

The level of knowledge about prostate cancer screening and screening services in this study was associated with participants' occupation and level of education. The civil servants and those with a tertiary level of education had a better knowledge of prostate screening and screening services than their counterparts who are artisans, farmers, and with less than the tertiary level of education. Education level and occupation are highly interlinked as people who are educated not only have higher chances of better civil service but also can have access to health education messages, assimilating them and practicing them. Similar findings have also been reported in other parts of Africa [7, 11, 13].

The utilization of screening services for prostate cancer was considerably poor among participants in this study. Only 6.3% of men aged 40 years and above, reported having ever been screened for prostate cancer. This poor prostate cancer screening rate was similarly observed in other related studies done in southern and northern Nigeria.<sup>7,12</sup> Also, studies in other parts of sub-Saharan Africa reported similar findings [7, 11, 13]. This poor utility of screening services noted in this work may be due to the predominant out-of-pocket health care financing and poor

knowledge of prostate cancer and prostate cancer screening. The utilization of these prostate cancer screening services will enhance the early detection of prostate cancer disease with consequent reduction in prostate cancer morbidity and mortality.

The level of risk awareness about prostate cancer disease has been reportedly linked to individuals' health seeking behavior [7, 13, 16]. Only 30.8% of respondents in this study considered themselves to be at risk of prostate cancer disease. This poor risk perception has been similarly reported by many scholars in sub-Saharan Africa [7, 9, 10, 13, 14].<sup>8,9,10,13,14</sup> Strengthening of the ongoing efforts at awareness and sensitization campaign both at the hospital and the community level could result in better risk perception which will translate to better health-seeking behaviour.

The majority of the respondents (86.7%) are willing to know more about prostate cancer and prostate cancer screening as well as to be screened for prostate cancer disease. This finding is higher than those of some studies in Nigeria and other parts of sub-Saharan Africa [12, 13]. This shows that with a more aggressive campaign and sensitization on prostate cancer disease, screening and screening services, a stage migration in prostate cancer detection can be achieved.

## 5. Conclusion

This study revealed that the level of knowledge about prostate cancer and prostate cancer screening services is very low among men attending our secondary health facility. While the prostate cancer knowledge level is significantly affected by age, occupation, average monthly income, and level of education, the level of knowledge about prostate cancer screening and utilization of screening services for prostate cancer are associated with occupation and level of education. Hospital sensitization and focused awareness strategies aimed at increasing knowledge level about prostate cancer, prostate cancer screening, and screening services need to be scaled up in our outpatient clinics.

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## Conflicting interests

Nil

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