



Original

Assessment of Knowledge and Acceptance of Prostate Cancer screening among Male Employees of selected Local Governments in Benin City, Edo State

¹Ehwarieme TA, ²Josiah U

¹Department of Nursing Science, School of Basic Medical Sciences, University of Benin, Benin City, Nigeria

²Department of Nursing Science, Delta State University Abraka, Delta State, Nigeria

Corresponding author: Timothy A. Ehwarieme, Department of Nursing Science, School of Basic Medical Sciences, University of Benin, PMB 1154, Benin City, Edo State. timothy.ehwarieme@uniben.edu, +2348060696870

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Abstract

Background: Worldwide, prostate cancer is a disease of public health concern, early detection and intervention is an effective means through which the Burden of prostate cancer can be reduced. This study assessed knowledge and acceptance of prostate cancer screening among male employees in selected local government areas Secretariats in Benin City, Edo State.

Method: A cross-sectional descriptive survey design among 207 male employees purposively selected in these secretariats. A structured questionnaire which was subjected to validity and reliability was used for data collection. Data were analyzed using descriptive and inferential statistics and hypotheses tested at $p < 0.05$ level of significance.

Result: 76% have high knowledge of prostate cancer screening, with majority (82.4%) showing moderate acceptance of prostate cancer screening whereas only 16.0% had Undergo screening. Education [COR = 3.78, AOR = 3.23 $p < .001$], Years of service [COR = 2.88, AOR = 2.66 $p < .001$] and Level of income [COR = 2.11, AOR = 3.45 $p < .001$] were associated with high knowledge of prostate cancer screening while It was indicated that level of income [COR = 2.13, AOR = 2.02 $p = 0.01$], family history of prostate cancer COR = 0.10, AOR = 0.15; $p < .001$) were significantly associated with acceptance of prostate cancer screening.

Conclusion: This study contributes valuable insights into the factors influencing knowledge and acceptance of prostate cancer screening among male employees in Benin City. By addressing the gaps and leveraging socio-demographic factors to tailor interventions, public health initiatives can effectively reduce the burden of prostate cancer and improve health outcomes in the community.

Keywords: Prostate cancer, screening, male employees, knowledge, acceptance, factors associated, Edo State



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Introduction

Worldwide, prostate cancer is a disease of public health concern. It is reported to be one of the most common cancers in men and a leading cause of death. Globally, an estimated 1,414,259 cases and 375,304 deaths due to prostate cancer were reported in 2020.¹ In Nigeria, prostate cancer was noted to account for 12.3% of all cancer cases,² reported that many men who are at risk are not aware of the disease, and most individuals who are aware do not possess sufficient knowledge of preventive Measure such as screening. In order to reduce the burden of the disease and associated mortality, early detection through screening has been noted to be effective. Regrettably, low awareness and practice of prostate cancer screening among men in Nigeria has been severally reported.^{3,4}

Screening is an important intervention, which is employed to slow down the incidence of diseases. The World Health Organization¹ defines screening as a proactive method of identifying unrecognized health conditions in an apparently healthy, asymptomatic population by way of examinations, tests or other procedures that could be carried out efficiently among the target population. In screening for prostate cancer, the prostate specific antigen (PSA) blood test and digital rectal examination (DRE) are often used. It is advised that starting from age 45 years, at-risk individuals should consider uptake of digital rectal exams (DREs) and PSA tests at least yearly, whereas others should consider screening annually from 50 years upwards. The argument in favour of screening for prostate cancer is based on the understanding that if it is diagnosed early, there is likelihood of positive outcome as it could still be at a treatable stage. This has been backed with evidence of decreasing trend of the disease in countries with effective screening programmes.⁵

Nevertheless, a number of prostate cancer cases are still being reported when it is at advanced stage, which affects quality of life and requires significant medical cost. Despite the evidence that prostate cancer screening, such as prostate-specific antigen (PSA) has resulted to significant reduction in disease burden due to prostate cancer, in Nigeria, screening services/programme for prostate cancer is yet to measure up; where it has been reported to be as low as 10.2% to zero.^{4,3} As a result, individuals who are at risk miss the opportunity of being identified early and offered treatment when the disease is still at a relatively manageable stage. Therefore this study aimed at

assessing knowledge, acceptance and associated factors of prostate cancer screening among male employees in selected local Governments Secretariats in Benin City, Edo State.

Method

Research Design: A cross sectional descriptive survey research design was adopted for the study. The study settings are secretariats of selected L.GA in Benin City, Edo State. These L.GA are Egor with the headquarters in Uselu, Oredo with the headquarter in Sapele road and Ikpoba-Okha with its headquarters located in Idogbo. Economic activities in the local government area include timbering, farming amongst others.

Target Population: The target population comprised of male employee working in the secretariats of these LGA, according to record there are three hundred and fifty-three (353) male employees as distributed below Egor (60) Oredo (130) Ikpoba-Okha (163) Source: Egor, Oredo and Ikpoba-Okha Local Government Secretariats, 2023

Sample Size: The sample size was determined from the total population using the Taro-Yamane⁶ as shown below:

$$n = N / (1 + N [(d)]^2)$$

Where, n = sample size

N = population size = 353

d = level of precision = 0.05

Putting in the values:

$$n = 353 / (1 + 353(0.05)^2) = 353 / 1.88$$

$$\approx 187.7$$

$$\therefore n = 188$$

Adding 10% attrition = $10/100 \times 188 = 18.8 \approx 19$
= 188 + 19 = 207

Sample Distribution: these were distributed below according to proportion of target population Egor(35) Oredo(76) Ikpoba-Okha(96) making the total sample size of 207

Sampling Technique: A purposive sampling technique was utilized in selecting respondents for this study. This involved targeting individuals who meet the inclusion criterion for this study

Inclusion Criterion: Male employees at Egor, Oredo and Ikpoba-Okha Local Government Secretariats who are 40 years and above.



Exclusion Criteria: Male employees at Egor, Oredo and Ikpoba-Okha Local Government Secretariats who have been diagnosed with prostate cancer

Instrument for Data Collection: The instrument for data collection was a structured questionnaire. It was divided into four sections (A, B, C and D). Section A: comprised of socio-demographic information of respondents (age, educational level, no of years in service, marital status, family history of prostate cancer, local government area, level of income). Section B: consisted of 10 items on the knowledge of respondents on prostate cancer and screening. Section C: comprised of items on acceptance of prostate cancer screening. Section D: comprised of items on factors associated with acceptance of prostate cancer screening. It was structured using a 4-point Likert scale of SA – Strongly Agree, A – Agree, D – Disagree, SD - Strongly Disagree.

Validity and Reliability of the Instrument: The instrument was validated using face and content validity by experts in the field of measurement and evaluation as well as urology. Reliability of the instrument was ensured by using split half reliability test for internal consistency. This was achieved by administering 20 copies (10% of the sample) of the instrument to respondents who are not part of the population but share similar characteristics with the population. Data obtained were analyzed using Cronbach alpha, the Cronbach coefficient of 0.84, 0.77 and 0.93 were obtained for section B, C and D respectively which showed it was reliable to be used in the study.

Method of Data Collection; Data were collected through direct administration of the instrument to the respondents. This was done by the researcher by visiting the Secretariats where respondents were accessed. Efforts were made to explain the purpose of the study after which those who consented to take part in the exercise were handed a copy of the instrument to complete. After completing the instrument, effort were made to immediately retrieve them in order to ensure high return rate.

Method of Data Analysis: Data collected were analyzed using descriptive and inferential statistics such as chi-square and multiple logistic regression at 5% significant level. All analysis were done using Statistical Package for Social Science (SPSS 29.0)

Ethical Consideration: Ethical clearance with protocol number AB.215/T^{2B}/139 and EGLHA/001/VOL.2

was obtained from the different LGA ethical and research committees. Other ethical procedures were strictly followed so as not to violate principles guiding conduct of research work.

Results

Table 1 showed that majority of the respondents (35.1%) were within the age range 47-53 years, 34.6% were within 54-60 years, while 29.3% were within 40-46 years. Educational background indicated that majority had their education up to tertiary level (67.0%). Marital statuses revealed that majority of the respondents were married (54.8%). Level of income showed that majority (38.3%) earn between N61,000-N100,000 monthly. Based on family history of prostate cancer, majority (75.5%) reported having no family history of prostate cancer, whereas 19.7% affirmed family history of prostate cancer.

Table 1: Demographic Information of Respondents (n = 188)

Variable	Freq	Percent
Age		
40-46 years	55	29.3
47-53 years	66	35.1
54-60 years	65	34.6
Educational Background		
Primary School	17	9.0
Secondary Education (SSCE)	43	22.9
Tertiary Education	126	67.0
No of years in service		
Less than 5 years	43	22.9
5 – 10 years	70	37.3
Above 10 years	72	38.3
Marital Status		
Single	35	18.6
Married	103	54.8
Separated/Divorced	26	13.8
Widower	17	9.0
Level of Income (Monthly)		
₦30,000 – ₦60,000	50	26.6
₦61,000 – ₦100,000	72	38.3
₦100,000 and above	63	33.5
Local Government Area (LGA)		
Egor LGA	32	17.0%
Oredo LGA	69	36.7%
Ikpoba Okha	87	46.3%
Family history of prostate cancer (relative with/had prostate cancer)		



Yes 37 19.7
 No 142 75.5
 Table 2 below, showed the overall knowledge score of respondents showed 25% of the respondents were

wrong in their responses while 75% answered correctly. On the other hand, 35 (16.6%) had average knowledge, whereas 143 (76.1%) high knowledge of prostate cancer and screening.

Table 2: Knowledge of Prostate cancer and screening

Items	Wrong response F(%)	Correct response F(%)	
All men are at risk of prostate cancer	166 (88.3)	20(10.6)	
Risks for prostate cancer include all but one	147(78.2)	39(20.7)	
Symptoms of prostate cancer include trouble urinating or weak flow of urine	161(85.1)	13(6.91)	
Prostate cancer screening aids early detection of prostate cancer	176(93.6)	8(4.2)	
Prostate cancer screening is recommended ____	147(78.2)	40(21.3)	
For those at high risk (such as family history of prostate cancer), screening is recommended every	123(66.)	65(43.6)	
Screening for prostate cancer is recommended every ____ years for those at low risk (such as those without family history of prostate cancer)	65(34.6)	120(63.8)	
Prostate cancer screening is available in Nigeria	162(86.2)	19(10.1)	
Prostate specific antigen (PAS) blood test is a form of prostate cancer screening	138(73.4)	26(13.8)	
Digital Rectum Examination (DRE) is a form of prostate cancer screening	124(66.0)	25(13.3)	
Mean correct responses	24.49 ≈ 25	74.9%≈ 75%	
Classification of level of knowledge			
	Criteria	f	%
Low knowledge	1-3	10	5.3%
Average knowledge	4-7	35	16.6%
High knowledge	7-10	143	76.1%

Table 3: Acceptance of Prostate Cancer Screening

Items	Freq	Per (%)	Mean (Std. dev)
On a scale of 1-5, where 5 is the highest, how would you rate your risk/susceptibility to prostate cancer?			
1	110	58.5	1.60 (±0.90)
2	48	25.5	
3	19	10.1	
4	03	1.6	
5	4	2.1	
Are you willing to undergo prostate cancer screening if provided the opportunity?			
Yes	168	89.4	
No	15	8.0	
On a scale of 1-5, where 5 is the highest, how would you rate your likelihood to accept/undergo prostate cancer screening in the nearest future (like in 3 months or 6 months from now)?			
1	70	37.2	2.23 (±1.2)
2	39	20.7	
3	50	26.6	



Items	Freq	Per (%)	Mean (Std. dev)
4	15	8.0	
5	11	5.9	
Do you perceive any benefit in prostate cancer screening?			
Yes	137	72.9	
No	40	21.3	
Would you recommend prostate cancer screening to your family member, friends, colleagues and acquaintances?			
Yes	169	89.9	
No	16	8.5	
Practice of prostate cancer screening			
Items	Freq	Percent (%)	
Ever undergone prostate cancer screening			
Yes	30	16.0%	
No	152	80.9%	
If yes, what type (n = 30)			
Prostate Specific Antigen Test (PSA)	17	56.7%	
Digital Rectum Examination (DRE)	07	23.3%	
Can't remember	04	13.3%	
Motivation for undergoing prostate cancer screening (n = 30)			
Medical advice	19	63.3%	
Advice from relative/friends	05	16.7%	
Advert/Messages in the media	02	6.67%	

Benchmark = $(5 + 4 + 3 + 2 + 1)/5 = 3.0$ (Mean < 3.0 = perceived low susceptibility/less likelihood to undergo screening; mean > 3.0 = perceived high susceptibility/high likelihood to undergo screening).

Test (PSA) (56.75), 23.3% had Digital Rectum Examination (DRE)

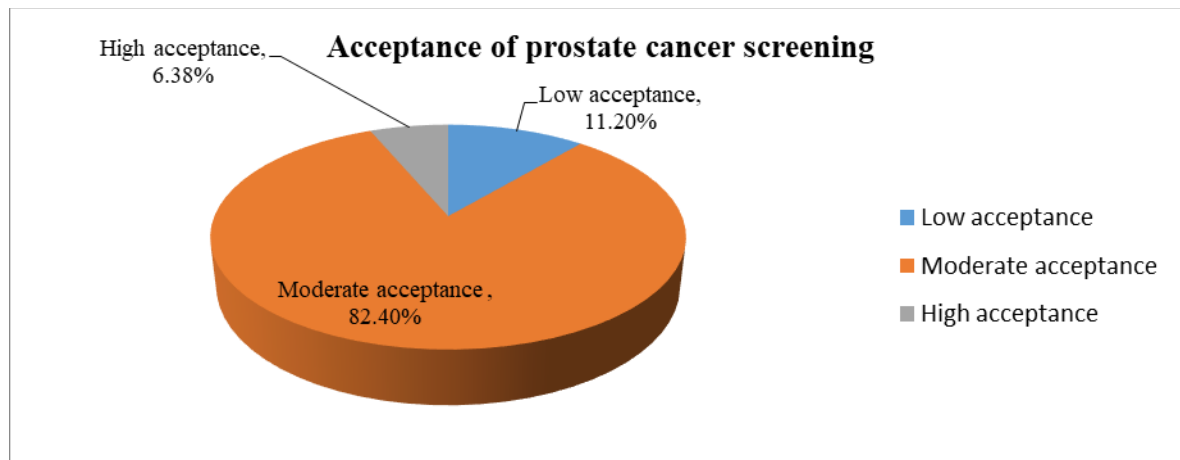


Figure 1: Acceptance of Prostate cancer screening

Table 4 below showed perceived factor associated with prostate cancer screening among the respondents. A grand mean of 2.78 was obtained for all items, which

implied that respondents perceived certain factors as reasons for non-acceptance of prostate cancer screening.



Table 4: Perceived factors associated with non-acceptance of prostate cancer screening

Items	SA F(%)	A F(%)	D F(%)	SD F(%)	Mean	Std. d	Remark
I perceive cost of prostate cancer screening will be expensive.	97 (51.6%)	74 (39.4%)	12 (6.4%)	3 (1.6%)	3.43	.69	Agree
I am afraid of the abnormal result/outcome from prostate cancer screening.	52 (27.7%)	74 (39.4%)	43 (22.9%)	17 (9.0%)	2.86	.93	Agree
Am not susceptible to prostate cancer, so there is no need for screening.	44 (23.4%)	64 (34.0%)	44 (23.4%)	34 (18.1%)	2.63	1.04	Agree
I perceive prostate cancer screening is a painful and uncomfortable procedure.	62 (33.0%)	61 (32.45)	38 (20.2%)	25 (13.3%)	2.86	1.03	Agree
Prostate cancer is not as serious as it is portrayed, hence screening is not needed.	27 (14.4%)	23 (12.2%)	89 (47.3%)	47 (25.0%)	2.16	.97	Disagree
Attitude of healthcare provider discourages me from considering prostate cancer screening.	55 (29.3%)	58 (30.95)	38 (20.2%)	33 (17.6%)	2.73	1.08	Agree
My busy work schedule may not afford me the time to consider prostate cancer screening.	57 (30.3%)	57 (30.3%)	46 (24.5%)	25 (13.3%)	2.79	1.03	Agree
I perceive prostate cancer screening affects sexual functioning	58 (30.95)	65 (34.6%)	26 (13.8%)	36 (19.1%)	2.78	1.09	Agree
Grand Mean					2.78		

Mean cut off = (4 + 3 + 2 + 1)/4 = 2.5 (on a scale of 4)

Table 5 showed the association between socio-demographic variables and knowledge of prostate cancer screening. It was observed that educational level ($p = .00$), number of years in service ($p = .00$), level of income ($p = .00$), local government, family history of prostate cancer ($p = .02$) were significantly associated with knowledge, implying that these socio-demographic variable influenced respondents knowledge on prostate cancer screening. Further analysis to check for the strength of association, showed that those with tertiary

education [COR = 3.78, AOR = 3.23] were 3.23 times likely to be more knowledgeable than those with primary school certificate. Years of service those with above 10 years' experience [COR = 2.88, AOR = 2.66] were 2.66 times likely to possess more knowledge than those in the less than 5 years category. Level of income showed that those who earned N100, 000 and above [COR = 2.11, AOR = 3.45] were 3.45 times more likely to be knowledgeable than those in the N30,000- N60,000 group.

Table 5: Association between socio-demographic characteristics of respondents and knowledge of prostate cancer

Demographic variables	Knowledge				χ^2	p-value	95% CI	
	N	Low	Average	High F (%)			COR	AOR
Age								
40 – 46 years	56	5 (3.0)	9 (10.4)	42 (42.6)	5.25	$p = .26$		
47 – 53 years	67	04 (3.6)	10 (12.5)	53 (51.0)				
54 – 60 years	65	01 (3.5)	16 (12.1)	48 (49.4)				
Educational level								
Primary School Certificate	17	04 (09)	4 (3.2)	09 (12.9)	30.6	$p = .00$	1	2.3 (0.72, 7.34)
SSCE	43	05 (2.3)	07 (8.0)	31 (32.7)				



Demographic variables	Knowledge				χ^2	p-value	95% CI	
	N	Low	Average	High F (%)			COR	AOR
Tertiary Education	126	0 (6.7)	24 (23.5)	102 (95.8)			3.78 (1.32, 10.8)	3.23 (1.02, 9.45)
No of years in service					22.7	$p = .00$	1	
Less than 5 years	43	08 (2.3)	10 (8.0)	25 (32.7)				
5 – 10 years	70	02 (3.7)	10 (13.0)	58 (53.2)			3.48 (1.46, 8.29)	3.22 (1.19, 7.87)
Above 10 years	72	0 (3.7)	14 (13.0)	56 (53.2)			2.88 (1.24, 6.69)	2.62 (1.91, 6.05)
Marital status					11.9	$p = .16$		
Single	35	05 (1.9)	07 (6.5)	23 (26.6)				
Married	103	05 (5.5)	19 (19.2)	79 (78.2)				
Separated/Divorced	26	0 (1.4)	7 (4.8)	19 (19.8)				
Widower	17	0 (09)	1 (3.2)	16 (12.9)				
Level of income (Monthly)					25.9	$p = .00$	1	
N30,000 – N60,000	50	9 (2.7)	11 (9.5)	31 (38.8)				
N61,000 – N100,000	72	01 (4.7)	9 (12.8)	59 (52.5)			3.81 (1.59, 9.13)	3.24(1.34, 8.71)
N100,000 and above	63	0 (6.7)	15 (11.5)	49 (18.6)			2.11 (0.94, 4.72)	3.45 (1.76, 4.53)
Local Government					12.4	$p = .02$	1	
Egor LGA	32	03 (1.4)	04 (5.3)	25 (27.1)				
Oredo	69	05 (3.9)	10 (11.2)	54 (48.6)			1.02 (0.37, 2.78)	1.01 (0.28, 2.16)
Ikpoba-Okha	87	02 (1.1)	21 (20.1)	64 (60.2)			0.78 (0.3, 2.04)	0.57 (0.27, 1.87)
Family history of prostate cancer (relative with/that had prostate cancer)					6.48	$p = .02$	1	
Yes	37	0 (2.0)	6 (6.9)	31 (28.1)				
No	142	10 (7.6)	29 (26.4)	103 (108)			0.51 (0.2, 1.32)	0.44 (0.3-1.45)

COR = Crude odd ratio, AOR = Adjusted odd ratio

Table 6 showed the association between socio-demographic characteristics of respondents and acceptance of prostate cancer screening. It indicated that level of income ($p = 0.01$), and family history of prostate cancer ($p = .00$) were significantly associated with acceptance of prostate cancer screening. further analyzed in other to ascertain the degree/strength to which these variables influenced acceptance, thus

producing the crude odd ratio (COR). Results showed that respondents earning between N100,000 and above were 4.22 times more likely to accept screening compared to those in the N30,000- N60,000 category. After adjusting for other predictors, the likelihood increased to 4.34. Also, it was shown that respondents without family history of prostate cancer were 0.1 times less likely to accept prostate cancer screening compared to those with (COR = 0.10, AOR = 0.15).

Table 6: Association between socio-demographic characteristics of respondents and acceptance of prostate cancer

Demographic variables	Acceptance				χ^2	p-value	95% CI	
	N	Low	Moderate	High			COR	AOR
Age								
40 – 46 years	56	09 (6.26)	44 (47.4)	03 (2.38)				
47 – 53 years	67	06 (7.48)	56 (56.7)	04 (2.85)	2.68	$p = .61$		
54 – 60 years	65	05 (7.26)	55 (54.9)	05 (2.77)				
Educational level								
Primary School Certificate	17	05 (1.94)	12 (15.1)	01 (0.97)				
SSCE	43	06 (4.73)	35 (36.9)	02 (2.37)	8.38	$p = 0.15$		
Tertiary Education	126	10 (13.3)	108 (104.0)	08 (6.67)				
No of years in service								



Demographic variables	Acceptance				p-value		95% CI	
	N	Low	Moderate	High	χ^2	COR	AOR	
Less than 5 years	43	07 (4.85)	34 (35.83)	02 (2.31)	6.49	$p = .17$		
5 – 10 years	70	06 (7.90)	63 (58.3)	01 (3.76)				
Above 10 years	72	08 (8.24)	58 (60.8)	07 (3.92)				
Marital status								
Single	35	08 (4.25)	25 (28.8)	02 (1.93)	11.57	$p = 0.07$		
Married	103	09 (12.5)	91 (84.8)	03 (5.69)				
Separated/Divorced	26	03 (3.16)	21 (21.4)	02 (1.44)				
Widower	17	02 (2.07)	12 (14.0)	03 (1.94)				
Level of income (Monthly)								
N30,000 – N60,000	50	12 (5.66)	37 (41.9)	01 (2.43)	12.6	$p = 0.01$	1	1
N61,000 – N100,000	72	05 (8.17)	64 (60.3)	03 (3.50)				
N100,000 and above	63	04 (7.15)	54 (52.8)	05 (3.06)				
Local Government								
Egor LGA	32	06 (3.57)	23 (26.4)	03 (2.04)	7.44	$p = .11$		
Oredo	69	05 (7.71)	57 (56.9)	07(4.40)				
Ikpoba-Okha	87	10 (9.72)	75 (71.7)	02 (5.55)				
Family history of prostate cancer (relative with/that had prostate cancer)								
Yes	37	02 (3.93)	30 (31.6)	05 (1.45)	12.3	$p = .00$	1	1
No	142	17 (15.1)	123 (121.4)	02 (5.55)				

COR = Crude odd ratio, AOR = Adjusted odd ratio

Discussion

The present study reported a high level of knowledge among respondents regarding prostate cancer and screening, which was consistent with the findings of Musalli et al.,⁷ in Saudi Arabia, which reported high knowledge among primary care patients. This suggests that individuals in both the Nigerian and Saudi Arabian contexts may have relatively high awareness levels regarding prostate cancer and its screening methods. While the present study found high levels of knowledge overall, it also identified gaps in understanding, particularly concerning screening intervals for individuals at different risk levels. This finding aligns with Alothman et al.,⁸ who reported low knowledge on prostate cancer and screening among males in Saudi Arabia. The discrepancy in knowledge levels across different aspects of prostate cancer screening highlighted the need for targeted education and awareness campaigns to address specific areas of confusion or misunderstanding. The primary source of information on prostate cancer screening in the present study was healthcare providers, which is consistent with the findings of Enemugwem et al.⁸ in Nigeria. Similarly, Musalli et al.,⁷ also identified healthcare providers as a significant source of information for primary care patients in

Saudi Arabia. This underscores the importance of healthcare professionals in disseminating accurate information about prostate cancer and promoting regular screening practices. The comparison with previous studies, particularly those conducted in Saudi Arabia, provides valuable insights into potential factors influencing knowledge levels across different populations. The findings of the present study, along with empirical evidence from Musalli et al., Alothman et al., and Enemugwem et al., have important implications for public health interventions aimed at increasing awareness and knowledge of prostate cancer and screening. Tailored educational initiatives should address specific knowledge gaps identified in each population, leveraging healthcare providers as key resources for disseminating information and promoting screening practices.

The findings from the present study shed light on the acceptance of prostate cancer screening among male employees, as well as their perceived susceptibility to the disease and their likelihood to undergo screening in the future. The study revealed that a significant proportion of male employees had moderate acceptance of prostate cancer screening. This suggested that while there was some level of



willingness to undergo screening, it was not universally high among the population studied. This finding was consistent with Ugochukwu et al.,¹⁰ who reported high willingness among men in Lagos, Nigeria. However, the moderate level of acceptance in the present study could be attributed to factors such as perceived low susceptibility to prostate cancer or concerns about the cost of screening, reflecting broader socioeconomic considerations. The study found that the majority of male employees had low perceived susceptibility to prostate cancer, with only a small percentage indicated high perceived susceptibility. This finding mirrored similar results reported by Olaoye et al.,¹¹ in Lagos, Nigeria, and Bugoye et al.,¹¹ in Tanzania, suggested a common trend of low perceived susceptibility among men in different settings. This perception of low susceptibility could influence individuals' attitudes towards screening and their willingness to engage in preventive healthcare practices. Approximately of male employees showed low likelihood to undergo prostate cancer screening in the nearest future, indicating potential barriers to access screening services. Factors such as cost, lack of regular medical checkups, and other personal barriers might have contributed to this reluctance. This highlighted the importance of addressing these barriers through targeted interventions aimed at increasing access to screening services and promoting regular health checkups among the population. Despite the hesitancy observed in some individuals, a significant proportion acknowledged the benefits of prostate cancer screening. Additionally, nearly expressed willingness to recommend screening to family members, friends, colleagues, and acquaintances. This suggested that there might be barriers to individual participation, there was recognition of the importance of screening within the community, indicating potential for collective action to promote screening uptake. Therefore, addressed barriers to screening uptake and increased awareness of the importance of early detection as essential steps in improving prostate cancer screening rates and reduced the burden of the disease within the population studied.

The present study revealed that only of male employees had ever undergone prostate cancer screening, while significant majority had never undergone screening. This finding was consistent with previous research conducted by Yeboah-

Asiamah et al.¹³ and Kinyao and Kishoyian,¹⁴ which reported low screening rates among teachers in Sunyani Municipality, Ghana, and adult men in Makueni County, Kenya, respectively. Additionally, Lima et al.¹⁵ observed similar trend of frequent PSA usage among elderly males in a small city in Brazil. However, these findings were in contrast with those of Nair-Shalliker,¹⁶ who reported high uptake of prostate cancer screening among men in Australians of New South Wales. The discrepancy in uptake rates could be attributed to various factors, including differences in healthcare policies and programs, cultural attitudes towards screening, and the prioritization of prostate cancer screening within the population studied. The low uptake recorded in the present study could be indicative of the absence of policies or programs, either nationwide or statewide, mandating regular prostate cancer screening. Additionally, it could reflect a low priority placed on prostate cancer screening by the population, potentially due to a lack of awareness, misconceptions about screening procedures, or other competing health concerns.

The findings from the present study regarding perceived factors associated with acceptance of prostate cancer screening provided valuable insights into the barriers faced by male employees in accessing screening services. These barriers include cost, fear of negative results, and perceived low susceptibility; belief in painful procedure, as well as negative attitudes of healthcare providers, others are, busy work schedule, and misconceptions about screening and sexual functioning. The findings from the present study were consistent with previous empirical researches. For instance, Kolade et al.,² in Oyo State reported similar barriers to screening acceptance among male civil servants, others included cost, work schedule conflicts, and negative beliefs. This suggested that financial constraints might be a common barrier to screening acceptance across different populations. Similarly, Bugoye et al.,¹² reported fear of cancer diagnosis as a barrier to screening uptake among men in Dar Es Salaam, Tanzania. This fear may deter individuals from seeking screening services, highlighting the importance of addressing anxieties and providing supportive counseling to encourage participation in screening programs. Also dispelling these myths through education and providing accurate information about the screening procedure can help



alleviate concerns and encourage individuals to undergo screening without unnecessary anxiety.

Additionally, the perception of low susceptibility to prostate cancer, as identified in the present study, is consistent with findings by Olaoye et al.,¹¹ in Lagos, Nigeria, and Bugoye et al.,¹² in Tanzania. Addressing misconceptions and increasing awareness about the prevalence and risk factors of prostate cancer are crucial in ensuring individuals understand their personal risk and the importance of early detection. The negative attitude of healthcare providers towards screening, as perceived by participants in the present study, echoes findings by Kolade et al.² among male civil servants. Improving provider-patient communication and fostering a supportive healthcare environment were essential in addressing this barrier and promotion of trust in the healthcare system.

The present study examined the association between socio-demographic variables and knowledge of prostate cancer screening among male employees. The results revealed that educational level, number of years in service, level of income, local government, and family history of prostate cancer were significantly associated with knowledge, indicated that these socio-demographic factors influenced respondents' knowledge of prostate cancer screening. These findings were consistent with those of Musalli et al.,⁷ who reported a significant correlation between socio-economic status (educational level and income) and knowledge among primary care patients in Saudi Arabia. Also, Schoenborn et al.,¹⁷ Hararah et al.,¹⁸ in the United States, reported that higher educational attainment was positively correlated with greater knowledge about prostate cancer screening guidelines. Similarly, studies in Italy, and South Africa, found that individuals with higher levels of education were more likely to be aware of prostate cancer screening recommendations and understand the potential benefits and risks associated with screening.^{19,20} Furthermore, consistent with the findings of these studies were Ilic et al.,²¹ in Australia who found that individuals with higher income levels were more likely to be aware of prostate cancer screening guidelines and access screening services, Rock et al.,²² in the United States, and Wu et al.²³ in Taiwan, who identified income disparities in prostate cancer screening

rates, with individuals from lower income brackets less likely to undergo screening compared to those with higher incomes. The explanation for this association could be that individuals in higher socio-economic strata tend to pay more attention to health-related issues and have better access to information and healthcare services.

Consequently, the present study revealed levels of income and family history of prostate cancer as significantly associated with acceptance of prostate cancer screening. This finding was in line with Shanko, et al.²⁴ who reported family history of prostate cancer being significantly associated with acceptance of screening among men in public health facilities in, Ethiopia,

Implications of findings

The study have implication in the following areas highlighted below

- Develop targeted educational campaigns to address knowledge gaps and misconceptions.
- Address barriers like cost and fear of negative results through policy changes and supportive healthcare environments.
- Increase awareness of prostate cancer prevalence and risk factors to address perceived low susceptibility.
- Tailor interventions to consider sociodemographic factors influencing knowledge and by implementing these recommendations, public health initiatives can improve prostate cancer screening rates and potentially reduce the disease burden within the studied population acceptance.

Strengths

The study's strengths include its large sample size, which allows for generalizability of the findings to a wider population. Additionally, the comparison with previous studies provides context for the results and helps to identify potential trends. The study also identifies specific knowledge gaps about prostate cancer screening, which can be targeted by educational interventions. Furthermore, the exploration of perceived barriers to screening can inform the design of more effective interventions. Finally, the study considers sociodemographic factors that may influence knowledge and acceptance of screening, allowing for the development of tailored approaches.



Limitations

However, the study also has limitations. The cross-sectional design means that it cannot establish causality between the variables studied. Additionally, the reliance on self-reported data may introduce bias, as participants may be inaccurate or unwilling to report certain information. The study's focus on a specific population of male employees limits the generalizability of the findings to other populations.

Conclusion

This study investigated knowledge, acceptance, and uptake of prostate cancer screening among male employees. Participants demonstrated good overall knowledge but needed targeted education on screening intervals for different risk groups. While some willingness to undergo screening existed, factors like perceived low susceptibility and cost concerns hindered acceptance. A significant proportion had never undergone screening, reflecting the need for improved access and education. Education level, income, family history, and work location all played a role.

Declarations

Ethical Consideration: Ethical clearance with protocol number AB.215/T^{2B}/139 and EGLHA/001/VOL.2 was obtained from the different LGA ethical and research committees. Other ethical procedures were strictly followed so as not to violate principles guiding conduct of research work.

Authors' Contribution: ETA conceived the research idea, conducted the research, and performed the statistical analysis. Prepare manuscript, conducted the research. JU proofread and edit manuscripts and conducted the research. All authors contributed substantially to the write-up of the article and all take

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