

Research Article

Assessment of Knowledge, Attitude, and Practice of Prostate Cancer Prevention Among Male Residents

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Abstract

Prostate cancer is the second most common cancer globally and the fifth leading cause of cancer-related mortality in men, with approximately 1,200,000 new diagnoses and 359,000 deaths recorded in 2018. In Africa, it ranks as the most prevalent cancer, with 40,000 new cases and 28,000 cancer-related deaths annually. In Nigeria, it is the most common malignancy among men, accounting for 29.8% of all male cancers according to GLOBOCAN 2020 statistics. This study assessed the knowledge, attitudes, and practices related to prostate cancer prevention among men aged 20 to 80 years residing in the Okada community. A descriptive cross-sectional survey was conducted among 382 consenting male respondents. The self-administered questionnaire comprised four sections (A–D), addressing socio-demographic characteristics, knowledge of prostate cancer and screening, attitudes toward prostate cancer prevention, and prevention practices, respectively. The results revealed that 52.9% of respondents had inadequate knowledge of prostate cancer and screening. Although 67.8% had previously heard of prostate cancer, 78.5% demonstrated a positive attitude toward screening and prevention, while 84.6% exhibited poor prostate cancer prevention practices. The findings indicated that respondents with higher educational attainment possessed better knowledge of prostate cancer and screening than those with lower or no formal education. Younger men were more likely to express positive attitudes toward prostate cancer prevention. Furthermore, individuals with higher education levels were more likely to engage in effective prostate cancer prevention practices than those with limited or no formal education. Overall, respondents demonstrated inadequate knowledge of prostate cancer and screening, a generally positive attitude toward prevention, but poor preventive practices.

Keywords

Prostate Cancer, Knowledge, Attitude, Practice

1. Introduction

Diseases have coexisted with humanity since the earliest periods of recorded history, and prostate cancer is among the most significant. Scientists and medical practitioners have persistently sought ways to manage, prevent, and potentially

eradicate such conditions. One crucial approach is to assess men's knowledge, attitudes, and prevention practices regarding these diseases through population-based studies. Prostate cancer is the second most common cancer worldwide and the

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fifth leading cause of cancer-related mortality in men, with 1,200,000 new diagnoses and 359,000 deaths reported in 2018 [1]. In Africa, prostate cancer is the most prevalent cancer, with an estimated incidence of 40,000 cases and 28,000 cancer-related deaths [2]. It is also the most common cancer among Nigerian men, accounting for 29.8% of all male cancers according to GLOBOCAN 2020 statistics.

Prostate cancer is an adenocarcinoma of the prostate gland that may be slow-growing or rapidly progressive, with the potential to metastasize to the bones and lymph nodes. It represents a growing public health challenge among men worldwide [2]. The disease originates in the prostate gland when cells begin to proliferate uncontrollably. It may manifest as pain, difficulty urinating, sexual dysfunction, and erectile problems. Prostate cancer is associated with both physical and psychological symptoms that are frequently undetected in their early stages [3]. Common symptoms in advanced disease include interrupted urine flow, nocturia, and hematuria. In later stages, the cancer often metastasizes to the bones, causing pain in the hips, spine, or ribs [4]. Although the precise etiology of prostate cancer remains incompletely understood, established risk factors include advanced age (over 50 years), a family history of the disease, and African American ethnicity [4].

According to the American Cancer Society, the prostate cancer mortality rate declined by 3.5% annually from 2003 to 2012, largely attributed to improvements in early detection and treatment. Studies have demonstrated that late presentation and poor prognosis are closely associated with low awareness or a complete lack of understanding about the disease [5]. Additionally, advanced age, low educational attainment, poor perception and knowledge of prostate cancer, and the availability of alternative therapies have been identified as key contributors to delayed presentation [6].

Despite recent increases in prostate cancer awareness, screening uptake and early health-seeking behavior among men — particularly in developing countries — remain inadequate. Improved utilization of prostate cancer screening has been linked to a heightened perceived knowledge of the disease [7]. Conversely, positive health-seeking attitudes and behaviors are associated with good knowledge and understanding of the disease [8]. Studies indicate that self-perceived vulnerability is low among African men, largely due to limited awareness and insufficient knowledge of the illness [9]. Furthermore, less than 40% of Nigerian men aged 50 years and above are aware of the signs, symptoms, diagnostic methods, treatment options, and prevention strategies related to prostate cancer [9].

Growing interest in the role of knowledge, attitudes, and screening practices in prostate cancer prevention and control has led to increased awareness and a reduction in incidence in some regions [8]. Prostate cancer screening aims to detect the disease in asymptomatic men, particularly in its early stages, through the measurement of serum prostate-specific antigen (PSA) and digital rectal examination (DRE) [5].

The likelihood of being diagnosed with prostate cancer in developed countries is nearly twice that in developing nations. This disparity has been attributed to poor awareness, limited health education, the absence of organized screening programs, poverty, and inadequate healthcare infrastructure in low- and middle-income countries [10].

In African countries, particularly Nigeria, the majority of patients present at advanced stages of the disease, underscoring the critical need for sustained education and advocacy. Therefore, this study aimed to assess the levels of knowledge, attitudes, and prevention practices related to prostate cancer among men in the Okada community, Edo State, Nigeria.

2. Methodology

2.1. Study Design

A descriptive cross-sectional survey design was employed to evaluate knowledge, attitudes, and practices related to prostate cancer prevention among male residents aged 20 to 80 years in the Okada community.

2.2. Study Setting

The study was conducted in Okada Town, Ovia North Local Government Area, Edo State, Nigeria. The town is geographically located at latitude 6°36'41" N and longitude 3°48' E, within the UTC+1 time zone, and covers an area of approximately 2,301 square kilometers, situated about 58 kilometers from Benin City, the capital of Edo State.

2.3. Study Population

According to the National Population Commission (NPC) 2006 census, the Okada community has a total population of 155,344, comprising 80,433 males and 74,911 females, drawn from diverse ethnic groups including the Binis, Yoruba, Ijaws, Hausas, Urhobos, Ibos, and others. The primary occupations in Okada include farming and trading.

2.4. Study Participants

The study participants were male residents of Okada Town, Edo State, Nigeria, aged between 20 and 80 years.

2.5. Selection Criteria

Inclusion Criteria:

Participants were included if they were: male residents of the Okada community; between 20 and 80 years of age; and willing to provide informed consent.

Exclusion Criteria:

Participants were excluded if they were: female; males who did not reside in the Okada community; males below 20 or above 80 years of age; healthcare professionals; persons with

mental health conditions; or those who declined to provide consent.

2.6. Sampling Technique

A non-probability sampling approach was utilized to recruit participants. A convenience sampling method was employed during a community outreach event held at the Town Hall on the first day of data collection, while simple random sampling was applied on subsequent days. Questionnaires were administered at bank premises, motor garages, marketplaces, streets, workplaces, and respondents' homes.

2.7. Instruments for Data Collection

Data were collected using a structured questionnaire comprising both open- and closed-ended items, organized into four sections:

Section A: Socio-demographic characteristics of respondents

Section B: Knowledge of prostate cancer and prostate cancer screening

Section C: Attitudes toward prostate cancer screening and prevention

Section D: Practices of prostate cancer prevention

2.8. Validity and Reliability of the Instrument

The self-constructed questionnaire was pre-tested to assess its validity and reliability. Pre-testing was conducted at Okada Junction/New Road to identify and address any ambiguities prior to full-scale data collection.

2.9. Method of Data Collection

Questionnaires were distributed directly to respondents and collected immediately upon completion. For illiterate respondents, an interview-based method was employed, with explanations provided as necessary to facilitate comprehension.

2.10. Method of Data Analysis

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS), version 23. All responses were coded and entered into the software, and results were presented using frequency tables and percentage distributions.

3. Results

Table 1 presents the socio-demographic characteristics of the study respondents. Of the 400 questionnaires distributed, 382 were returned, yielding a response rate of 95.5%. The largest proportion of respondents (34.0%) fell within the 31–40 age group, followed by those aged 41–50 (24.9%). The majority (71.7%) were married. Most respondents (73.3%) identified as Christians, reflecting the predominantly Christian composition of the Okada community. With regard to educational attainment, 45.3% had secondary education, while 33.5% had tertiary-level education. In terms of occupation, 25.1% were businessmen. The most frequently reported monthly income bracket was ₦31,000–₦50,000, cited by 28.8% of respondents.

Table 1. Socio-demographic characteristics of respondents (N = 382).

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
AGE	20–30	72	18.8
	31–40	130	34.0
	41–50	95	24.9
	51–60	48	12.6
	61–70	30	7.9
	71–80	7	1.8
	Single	83	21.7
MARITAL STATUS	Married	274	71.7
	Divorced	6	1.6
	Widowed	19	5.0
RELIGION	Christian	280	73.3
	Muslim	83	21.7
	Traditional	17	4.5

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
EDUCATIONAL LEVEL	Non/Atheist	2	0.5
	Primary	51	13.4
	Secondary	173	45.3
	Tertiary	128	33.5
	No formal education	30	7.9
OCCUPATION	Civil servant	77	20.2
	Taxi driver	88	23.0
	Businessman	96	25.1
	Artisan/Handiwork	72	18.8
	Other (Farming)	49	12.8
MONTHLY EARNINGS	Less than ₦10,000	7	1.8
	₦10,000–30,000	65	17.0
	₦31,000–50,000	110	28.8
	₦51,000–70,000	94	24.6
	₦71,000–100,000	67	17.5
	Above ₦100,000	39	10.2

Table 2 presents respondents' knowledge of prostate cancer and prostate cancer screening. While 67.8% reported having heard of prostate cancer — with 18.1% citing books as their primary source of information — knowledge remained notably limited in several areas. The majority (66.5%) reported no family history of the disease. More than half (62.3%) were unable to identify the age group most at risk for prostate cancer. Regarding causes, 35.3% attributed prostate cancer to having

multiple sexual partners. As for the number of stages of prostate cancer development, 31.9% correctly identified three stages. With respect to curability, 45.5% believed the disease was curable; however, 31.9% did not know at which stage it could be cured. Only 26.4% were aware of drug-based treatment, while 59.7% acknowledged the existence of treatment options. A notable 60.7% had never heard of prostate cancer screening, and 74.4% were unaware of the recommended screening frequency.

Table 2. Knowledge of prostate cancer and prostate cancer screening (N = 382).

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
Ever heard of prostate cancer	Yes	259	67.8
	No	123	32.2
Source of information about prostate cancer	Friends	48	12.6
	Read about it	69	18.1
	TV/Radio	63	16.5
	Doctor	27	7.1
	Nurse	10	2.6
Ever known anyone who had or died of prostate cancer?	Relative	8	2.1
	Internet	34	8.9
	Yes	10	2.6

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
Gender affected by prostate cancer	No	254	66.5
	I don't know	118	30.9
	Men only	162	42.4
	Women only	1	0.3
	Both men and women	156	40.8
	I don't know	63	16.5
Risk factors for developing prostate cancer	Family history	130	34.0
	Alcohol intake	60	15.7
	Age	77	20.2
	Exercise	24	6.3
	Diet	40	10.3
	Smoking	51	13.4
Age group most likely to develop prostate cancer	Below 40 years	19	5.0
	40–50	20	5.2
	51–60	28	7.3
	61–70	17	4.5
	Above 70 years	60	15.7
	I don't know	238	62.3
Cause of prostate cancer	Alcohol intake	79	20.7
	Multiple sexual partners	135	35.3
	Family history	53	13.9
	Use of sexual stimulants	115	30.1
	2	119	31.2
	3	122	31.9
Number of stages of prostate cancer development	4	49	12.8
	5	54	14.1
	6	17	4.5
	Other (7, 8, 10)	21	5.5
	Yes	54	14.1
	No	114	29.8
Anyone can develop prostate cancer	I don't know	214	56.1
	Excessive urination at night	76	19.9
	Headache	22	5.8
	Blood in urine	56	14.7
	High temperature	44	11.5
	Bone pain	60	15.7
Symptoms of prostate cancer	Painful sex	51	13.4
	Loss of sex drive	29	9.9
	Infertility	38	7.6

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
Prostate cancer can be prevented	Cough	6	1.6
	Yes	240	62.8
	No	50	13.1
	I don't know	92	24.1
If yes, how can it be prevented?	Genital hygiene	84	22.0
	Regular screening	64	16.8
	Condom use	13	3.4
	Appropriate diet	47	12.4
	Avoiding multiple partners	41	12.3
Prostate cancer is curable	Other (avoid smoking)	3	0.8
	Yes	174	45.5
	No	50	13.1
	I don't know	158	41.4
At what stage can it be cured?	Early stage	102	26.7
	Anytime treatment begins	25	6.5
	Late stage	6	1.6
Do you know any method used in treating prostate cancer?	I don't know	122	31.9
	Yes	228	59.7
	No	154	40.3
	Radiotherapy only	1	0.3
	Surgery only	68	17.8
	Drugs only	101	26.4
	Radiotherapy and surgery only	4	1.0
If yes, which method do you know?	Radiotherapy and drugs only	9	2.4
	Surgery and drugs only	40	10.5
	Surgery, drugs, and radiotherapy	5	1.3
	Herbal/traditional medicine	1	0.3
	Yes	124	32.5
Have you ever heard about prostate cancer screening/testing?	No	232	60.7
	I don't know	26	6.8
	Hospital	39	10.2
	Pharmacy	10	2.6
	Friends	8	2.1
Source of information (if yes)	Relative	7	1.8
	Radio/TV	30	7.9
	Newspaper/book/magazine	22	5.8
	Other (internet)	12	3.1
	Yearly	59	15.4
How often should one undergo prostate cancer screening?	Every two years	21	5.5

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
	Every three years	18	4.7
	I don't know	284	74.4

Table 3 presents respondents' attitudes toward prostate cancer screening and prevention. The majority (96.3%) regarded screening as beneficial, and 95.0% did not consider it a waste of time. However, 53.1% were uncertain about potential side effects associated with screening, and 82.5% did not know whether screening was the sole diagnostic method for prostate cancer. Over half (57.6%) strongly agreed that getting screened is important for prevention. Most respondents

(52.1%) strongly disagreed that prostate cancer screening was embarrassing to them. Approximately 63.4% attributed failure to seek screening to a lack of knowledge, while 56.3% disagreed with the notion that nothing could be done to prevent prostate cancer. The vast majority (85.1%) indicated they would present themselves for screening if given the opportunity. Overall, these findings reflect a generally positive attitude toward prostate cancer screening and prevention.

Table 3. Attitudes toward prostate cancer screening and prevention (N = 382).

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
Prostate cancer screening is beneficial	Yes	368	96.3
	No	14	3.7
Going for prostate cancer screening is a waste of time	Yes	19	5.0
	No	363	95.0
Screening for prostate cancer has side effects	Yes	11	2.9
	No	168	44.0
	I don't know	203	53.1
Prostate cancer screening is the only means to diagnose prostate cancer	Yes	33	8.6
	No	34	8.9
	I don't know	315	82.5
It is important to get screened to prevent prostate cancer	Strongly agree	220	57.6
	Agree	142	37.2
	Disagree	16	4.2
	Strongly disagree	4	1.0
	Strongly agree	10	2.6
Prostate cancer screening is embarrassing to me	Agree	27	7.1
	Disagree	146	38.2
	Strongly disagree	199	52.1
What do you think prevents people from getting screened?	Lack of knowledge	242	63.4
	Fear of the unknown	73	19.1
	Deliberate avoidance of testing	50	13.1
	Religious beliefs	17	4.5
I believe there is nothing one can do to prevent prostate cancer	Strongly agree	12	3.1

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
Would you present yourself for prostate cancer screening if given the opportunity?	Agree	24	6.3
	Disagree	215	56.3
	Strongly disagree	131	34.3
	Yes	325	85.1
	No	42	11.0
	I don't know	15	3.9

Table 4 presents prostate cancer prevention practices among the respondents. Despite positive attitudes toward screening, prevention practices were markedly poor. An overwhelming majority (96.9%) had never undergone prostate cancer screening or testing, and 82.5% had never received a physician's recommendation to do so. Only eight respondents

(2.1%) reported having previously been screened. Among those who had been screened, PSA testing and biopsy were the most commonly used methods. All eight screened respondents returned negative results. Nonetheless, 81.4% expressed an intention to seek screening in the near future.

Table 4. Practice of prostate cancer prevention (N = 382).

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE (%)
Has any physician advised you to screen for prostate cancer?	Yes	53	13.9
	No	315	82.5
	I don't know	14	3.7
Have you ever been screened for prostate cancer?	Yes	8	2.1
	No	370	96.9
	I don't know	4	1.0
If yes, which method was used?	Prostate-specific antigen (PSA)	2	0.5
	Digital rectal examination (DRE)	1	0.3
	Biopsy	3	0.8
	I don't know	2	0.5
What was the outcome?	Positive	—	—
	Negative	8	1.7
Do you intend to get screened in the near future?	Yes	311	81.4
	No	71	18.6
	Last month	1	0.3
When did you last undergo prostate cancer screening?	3 months ago	—	—
	6 months ago	—	—
	1 year ago	—	—
	Never	375	98.2
	Other (3–5 years ago)	6	1.6

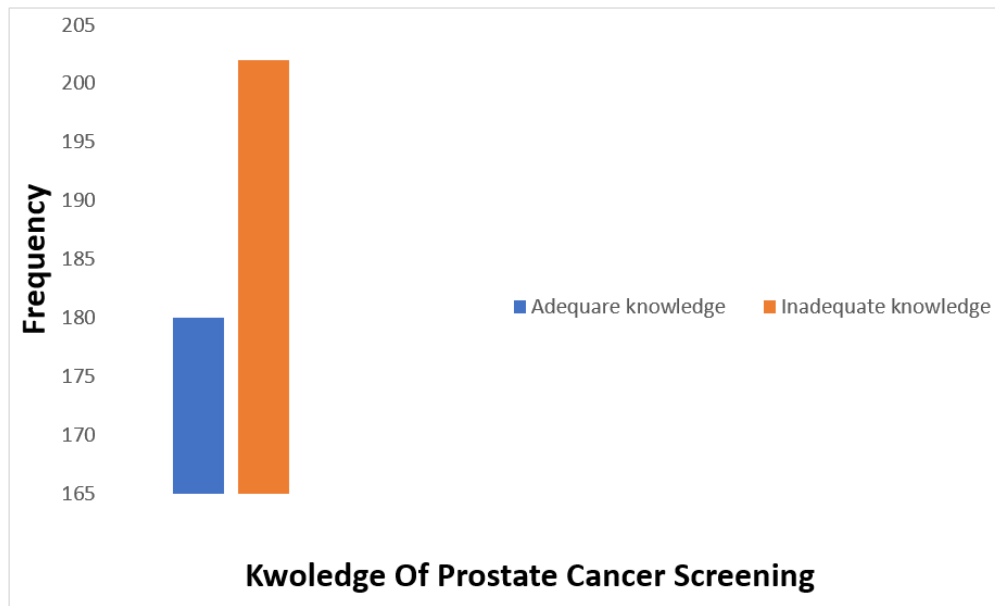


Figure 1. Knowledge of prostate cancer/prostate cancer screening.

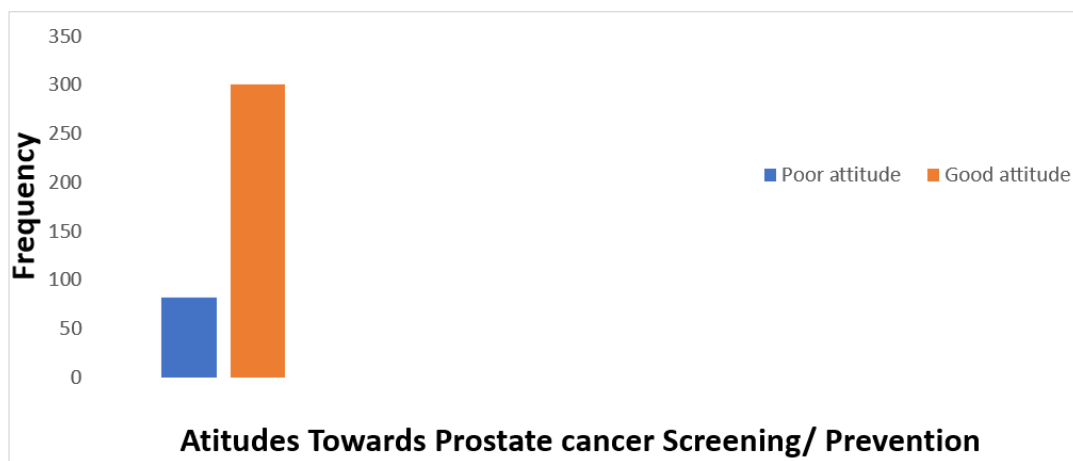
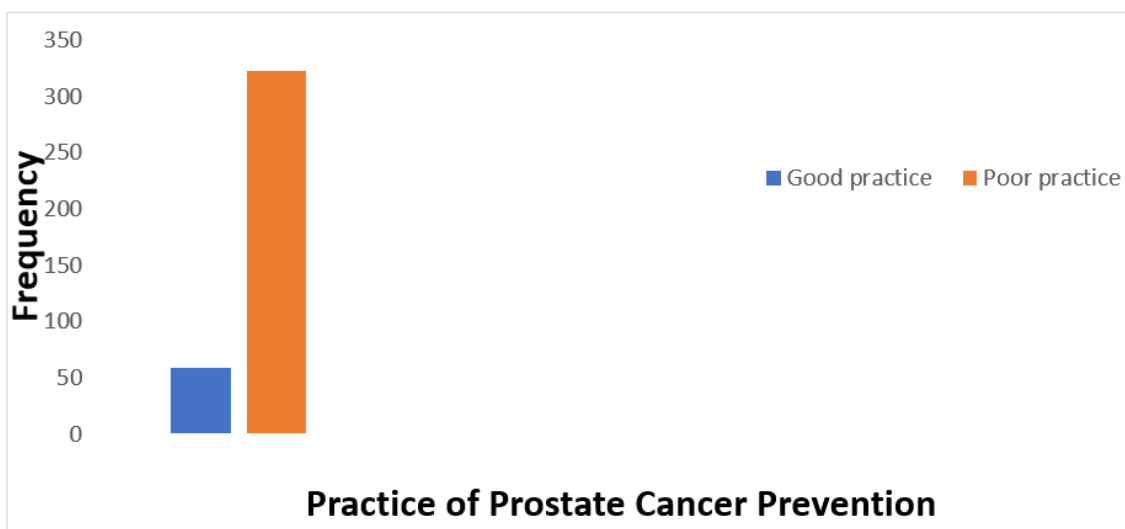


Figure 2. Attitude toward prostate cancer screening/prevention.



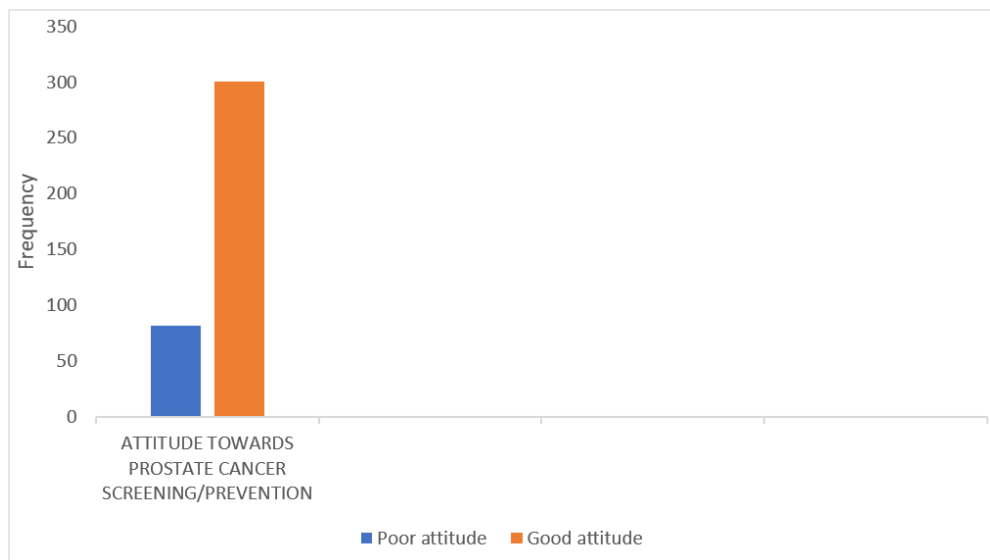


Figure 3. Practice of prostate cancer prevention.

4. Discussion

The socio-demographic data revealed that the majority of respondents were aged between 31–40 years (34.0%) and 41–50 years (24.9%), which is consistent with a study conducted among staff at the University of Nigeria, Nsukka, reporting comparable proportions of 32.1% and 23.2%, respectively [11]. Most respondents (71.7%) were married, and 73.3% identified as Christians, reflecting the predominantly Christian composition of the Okada community. Regarding educational attainment, a combined proportion of 78.8% had attained secondary or tertiary education, consistent with findings from a study conducted in Ppr Lembah Subang 1, Selangor, where 61% of respondents had higher educational backgrounds [12]. The predominant income bracket of ₦31,000–₦50,000 (28.8%) likely reflects the occupational profile of the Okada community, where many men work as taxi drivers, artisans, or small-scale business operators.

With respect to knowledge of prostate cancer and screening (Figure 1), the study found that 202 respondents (52.9%) demonstrated inadequate knowledge, despite 259 (67.8%) having previously heard of prostate cancer. This gap may be partly attributable to the exclusion of healthcare professionals from the study — a group that would generally have superior knowledge — and to poor health-seeking behavior and insufficient public awareness campaigns. These findings are consistent with studies from other parts of Nigeria that reported low levels of prostate cancer knowledge [9], as well as with results from a study conducted among patients aged 40 years and above at Kitwe Teaching Hospital, Zambia [13]. However, these findings contrast with those reported among University of Nigeria, Nsukka staff, where respondents demonstrated good knowledge of prostate cancer — a difference likely ex-

plained by the higher educational levels of university personnel across faculties such as Medical Sciences, Pharmacy, Dentistry, and Biological Sciences. The findings also differ from studies among Nigerian civil servants, where higher education and greater access to health information were associated with better knowledge [14].

The study found that respondents with higher educational attainment demonstrated better knowledge of prostate cancer and screening than those with lower or no formal education, likely owing to easier access to health information and greater health literacy. This is consistent with findings from a tertiary care hospital in southeast Nigeria, where most respondents with good prostate cancer knowledge had tertiary education [11], and with a study among men in Ppr Lembah Subang 1, Selangor [12], and among University of Nigeria, Nsukka staff, where Master's degree holders showed superior knowledge [11]. Conversely, some studies from Nigeria and Kenya found conflicting results, possibly reflecting the predominantly rural and low-educated populations sampled in those contexts. Regarding attitudes toward prostate cancer screening and prevention (Figure 2), the study found that 300 respondents (78.5%) expressed positive attitudes, despite limited knowledge. This may reflect the relatively higher educational attainment of the sample (45.3% secondary and 33.5% tertiary education). These findings align with a study at the University of Nigeria, Nsukka, where respondents generally demonstrated positive attitudes and two-thirds expressed willingness to seek screening in the future [11]. However, they contrast with findings from a tertiary care hospital in southeast Nigeria, where fewer than half of respondents demonstrated positive attitudes [11], and with a Ugandan study reporting negative attitudes among men [5].

Younger men in this study exhibited the most positive attitudes toward prostate cancer prevention, likely because they

constituted the majority of the sample and had higher educational attainment. This contrasts with a study in Ppr Lembah Subang 1, Selangor, where older adults demonstrated more favorable attitudes [12], and with a study in Negeri Sembilan, where the 51–60 age group showed the most positive attitudes. Furthermore, respondents with higher monthly earnings and educational levels were more likely to hold positive attitudes toward screening and prevention, possibly because they could more easily afford healthcare services and had better access to health information. This finding is consistent with studies conducted in Nigeria [15].

With respect to prostate cancer prevention practices (Figure 3), the study revealed that respondents demonstrated poor practices, likely resulting from inadequate knowledge of the disease. This is consistent with findings from a study among patients aged 40 and above at Kitwe Teaching Hospital, Zambia, which similarly reported poor preventive practices [13]. However, the findings are at variance with a study conducted in the United States, where respondents demonstrated good prostate cancer prevention practices [16]. As observed with knowledge, individuals with higher educational levels practiced prostate cancer prevention more effectively than those with limited or no formal education, consistent with studies from Ppr Lembah Subang 1, Selangor [12], and Italy [17].

5. Conclusion

This study established that men residing in the Okada community possess limited knowledge of prostate cancer and screening, despite holding generally positive attitudes toward prevention and screening. Prostate cancer prevention practices were found to be poor. These findings highlight the urgent need for targeted awareness, education, and sensitization campaigns to enhance men's willingness to undergo screening, facilitate early detection, and improve overall disease management outcomes.

6. Recommendations

Public health interventions funded by local, state, and federal governments, as well as non-governmental organizations (NGOs), should be established to disseminate accurate and accessible information about prostate cancer. Healthcare professionals should regularly conduct health education, awareness, and sensitization campaigns through radio and television broadcasts. Additionally, community-based prostate cancer screening centers should be made available at the primary healthcare level to improve accessibility and uptake of screening services.

7. Limitations of the Study

The study population does not fully represent the broader male population of the Okada community, given that

healthcare professionals, individuals with mental health conditions, those below 20 or above 80 years of age, non-residents of Okada, and individuals who declined consent were excluded. Additionally, a language barrier was encountered, particularly among illiterate participants, necessitating the use of an interpreter during data collection.

Abbreviations

KAP	Knowledge, Attitude, and Practice
PSA	Prostate-Specific Antigen
DRE	Digital Rectal Examination
NPC	National Population Commission
SPSS	Statistical Package for Social Sciences
GLOBOCAN	Global Cancer Observatory/Global Cancer Statistics
NGO	Non-Governmental Organization
CI	Confidence Interval
OR	Odds Ratio
WHO	World Health Organization

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Author Contributions

Ogunsina Olabode Isaiah: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Conflicts of Interest

The author declares no conflicts of interest.

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