

Original Research Article

Knowledge and Utilization of Prostate Cancer Screening Services among Males Aged 40 Years and Above in Kalingalinga Compound of Lusaka District, Zambia

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Abstract: Background: Prostate cancer remains a significant global public health challenge, particularly among men in Sub-Saharan Africa. In Zambia, its late presentation is linked to low screening uptake, poor knowledge, and sociocultural barriers. Early detection through screening can significantly reduce morbidity and mortality, yet many men remain unaware of the available services. **Methods:** A cross-sectional analytical study was conducted among 384 males aged 40 years and above in Kalingalinga Compound, Lusaka. Systematic simple random sampling was used. Data were collected using a structured questionnaire adapted from the Prostate Cancer Knowledge Assessment Tool (PCKAT) and Prostate Cancer Screening Questionnaire (PCSQ). Binary logistic regression was used to assess predictors of knowledge and utilization. SPSS version 26 was used for analysis. **Results:** Of the 384 participants, 51.6% demonstrated good knowledge of prostate cancer, while 48.4% had poor knowledge. Only 27.1% had ever utilized prostate cancer screening services. Significant predictors of knowledge included age, marital status, level of education, and cultural beliefs ($p < 0.05$). Factors influencing screening uptake included age group, education, marital status, employment status, perceived health worker attitude, and cultural beliefs. **Conclusion:** Knowledge and utilization of prostate cancer screening services among men in Kalingalinga were suboptimal. Strategies to improve awareness, address sociocultural barriers, and enhance provider-patient interactions are essential to promote early detection and reduce prostate cancer-related morbidity and mortality.

Keywords: Knowledge, Utilization, Prostate Cancer, Screening Services, Zambia.

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INTRODUCTION

Prostate cancer (PCa) is among the most commonly diagnosed malignancies and remains a leading cause of cancer-related deaths in men globally. In 2020 alone, the Global Cancer Observatory (GLOBOCAN) estimated over 1.4 million new cases of prostate cancer and more than 375,000 deaths worldwide. The burden is particularly severe in Sub-Saharan Africa, where incidence and mortality rates continue to rise due to delayed diagnosis and limited access to screening services.

In Zambia, prostate cancer has emerged as a significant public health concern, ranking among the top cancers affecting men. However, despite the availability

of screening tools such as the prostate-specific antigen (PSA) test and digital rectal examination (DRE), uptake remains alarmingly low. Most men are diagnosed at an advanced stage of the disease, when treatment options are limited and outcomes poor.

Poor knowledge of prostate cancer and its screening, cultural beliefs, stigma, and negative attitudes from healthcare providers have all been identified as barriers to screening in low-income communities. These challenges are compounded by inadequate awareness campaigns and underutilized health education strategies targeting men, especially those aged 40 years and above who are at increased risk.

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Kalingalinga Compound in Lusaka District, Zambia, is one such community where despite the availability of screening services, utilization remains poor. This study therefore aimed to assess the knowledge and utilization of prostate cancer screening services among males aged 40 years and above in Kalingalinga, and to identify factors influencing uptake. The findings are intended to inform interventions that can improve early detection and reduce the disease burden.

MATERIALS AND METHODS

Study Design and Approach

This study employed a quantitative approach and cross-sectional analytical design to assess knowledge and utilization of prostate cancer screening services among males aged 40 years and above in Kalingalinga Compound, Lusaka District, Zambia.

Study Setting

The research was conducted in Kalingalinga Compound, a densely populated peri-urban area in Lusaka with a public health clinic offering prostate cancer screening services. The site was selected based on feasibility, population density, and the presence of the target group.

Study Population

The population included males aged 40 years and above residing in Kalingalinga for at least six months prior to the study period.

Sample Size and Sampling Technique

A sample size of 384 participants was determined using Wald's formula with a 95% confidence interval and 5% margin of error, assuming a 50% expected prevalence of screening utilization. Systematic simple random sampling was employed from a sampling frame of approximately 1,500 eligible men, with a sampling interval of 4.

Inclusion and Exclusion Criteria

Inclusion criteria were men aged ≥ 40 years who had resided in Kalingalinga for ≥ 6 months and gave informed consent. Those with mental illness or found to be intoxicated at the time of data collection were excluded.

Data Collection Tools and Techniques

Data were collected using an interviewer-administered questionnaire adapted from the Prostate Cancer Knowledge Assessment Tool (PCKAT) and the Prostate Cancer Screening Questionnaire (PCSQ). The tools assessed demographic characteristics, knowledge, screening utilization, and related factors. Interviews were conducted face-to-face in a private setting to ensure confidentiality.

Variables Measured

Dependent Variables: Knowledge of prostate cancer screening and utilization of screening services.

Independent Variables: Age, marital status, education level, employment status, cultural beliefs, awareness, and healthcare provider attitudes.

Data Analysis

Data were cleaned and entered into SPSS version 26 for analysis. Descriptive statistics summarized demographic data, while binary logistic regression was used to identify predictors of knowledge and screening utilization. A p-value of <0.05 was considered statistically significant.

Ethical Considerations

Ethical approval was granted by the University of Zambia Biomedical Research Ethics Committee (UNZABREC) (Ref: 4465-2023) and the National Health Research Authority (NHRA) (Ref: NHRAR-R-723/01/08/2023). Written permission was obtained from the Lusaka District Health Office and the Sister-in-Charge at Kalingalinga Clinic. Informed consent was obtained from all participants, and confidentiality was strictly maintained.

Data Management and Confidentiality

Completed questionnaires were coded with serial numbers for anonymity and stored securely. Data were entered into a password-protected folder accessible only to the principal investigator.

RESULTS

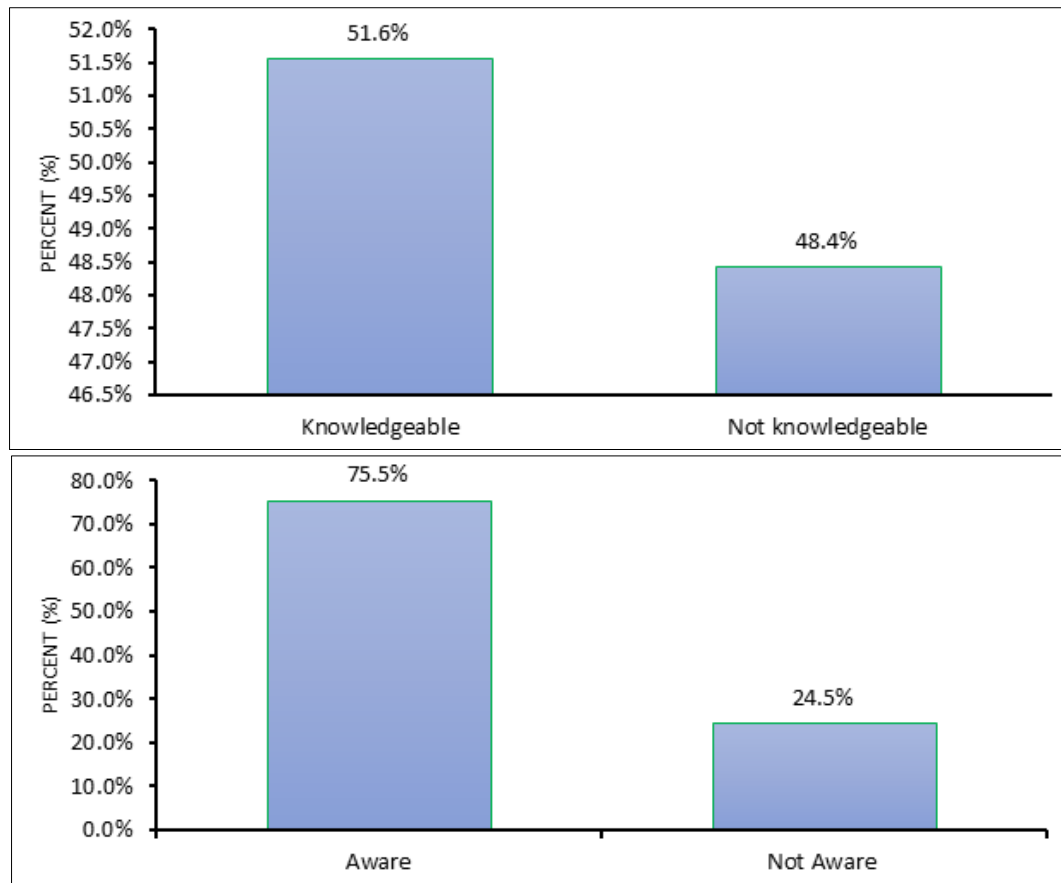
Demographic Characteristics

A total of 384 male participants aged 40 years and above were enrolled in the study. The majority (34.6%) were aged between 40–50 years, followed by those aged 51–60 years (33.1%), 61–70 years (21.1%), and 71 years and above (11.2%). Most respondents were unemployed (60.7%), and 53.9% were married. Regarding education, 40.4% had attained secondary education, and 32.3% had tertiary-level education.

Knowledge and Awareness of Prostate Cancer Screening

Out of the 384 participants:

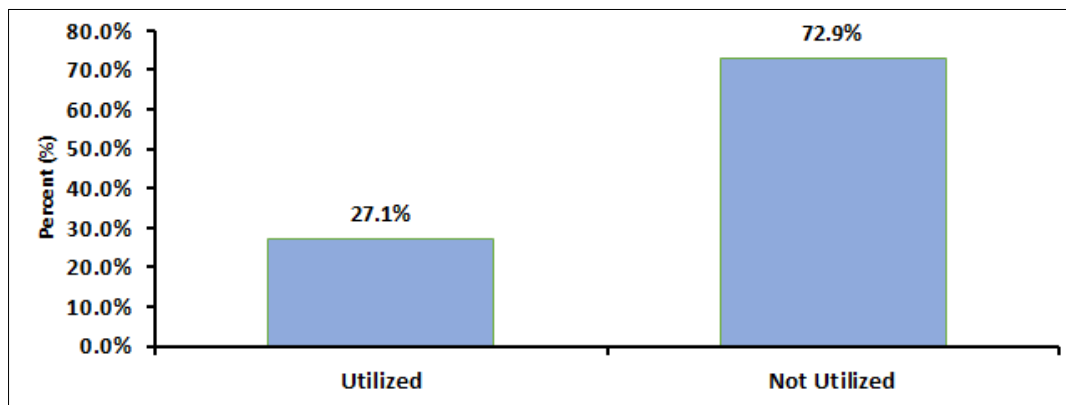
- 51.6% (n=198) demonstrated good knowledge of prostate cancer screening.
- 48.4% (n=186) had poor knowledge.
- 75.5% (n=290) were aware of prostate cancer screening services, while 24.5% (n=94) were not aware.



Utilization of Prostate Cancer Screening Services

Only 27.1% (n=104) of participants reported having ever undergone screening for prostate cancer

using either PSA testing or DRE. The remaining 72.9% (n=280) had never utilized the services.



Perceived Barriers to Screening

- 65.1% (n=250) of participants perceived healthcare providers' attitudes as good.
- 34.9% (n=134) reported negative experiences with providers.
- Regarding cultural beliefs:
 - 57.3% (n=220) held positive cultural beliefs toward screening.

- 42.7% (n=164) held negative beliefs, potentially hindering utilization.

Predictors of Knowledge

Multivariable logistic regression showed that: Factors associated with knowledge on Prostate Cancer Screening Services

Variable	Univariate estimates			Multivariable estimates		
	cOR	95% CI	P-value	aOR	95% CI	P-value
Age (years)						
40-50 years	Ref			Ref		
51-60 years	0.75	0.16, 3.58	0.021	0.65	0.10, 3.95	0.045
61-70 years	0.30	0.07, 1.38	0.020	0.25	0.05, 1.25	0.038
71 and above	0.10	0.02, 0.55	0.005	0.15	0.02, 0.88	0.030
Marital Status						
Married	Ref			Ref		
Single	0.60	0.15, 2.35	0.045	0.50	0.12, 2.05	0.039
Divorced	0.35	0.10, 1.27	0.020	0.30	0.08, 1.12	0.027
Employment Status						
Employed	Ref			Ref		
Unemployed	0.50	0.20, 1.25	0.030	0.45	0.15, 1.35	0.025
Education level						
No Education	Ref			Ref		
Primary	0.35	0.08, 1.50	0.030	0.30	0.05, 1.75	0.020
Secondary	0.50	0.20, 1.25	0.045	0.45	0.10, 2.05	0.038
Tertiary	0.25	0.10, 0.75	0.010	0.20	0.05, 0.85	0.015
Attitudes of Health Care Providers						
Good attitude	Ref			Ref		
Bad attitude	0.55	0.25, 1.25	0.022	0.50	0.20, 1.15	0.018
Cultural Beliefs about Prostate Cancer Screening						
Positive beliefs	Ref			Ref		
Negative beliefs	0.55	0.25, 1.20	0.018	0.50	0.20, 1.15	0.015
Awareness of Prostate Cancer Screening						
Aware	Ref			Ref		
Not aware	0.55	0.25, 1.20	0.015	0.50	0.20, 1.10	0.010

cOR = Crude Odds Ratio, *aOR* = Adjusted Odds Ratio, *CI* = Confidence interval

- Men aged 51–60, 61–70, and 71+ were less likely to be knowledgeable than those aged 40–50 ($p < 0.05$).
- Married men were significantly more likely to have good knowledge than single or divorced men ($p < 0.05$).
- Higher education level and positive cultural beliefs were positively associated with higher knowledge levels.

Predictors of Utilization

Variable	Univariate estimates			Multivariable estimates		
	cOR	95% CI	P-value	aOR	95% CI	P-value
Age						
40-50 years	Ref			Ref		
51-60 years	0.85	0.20, 4.38	0.022	0.62	0.15, 2.42	0.018
61-70 years	0.17	0.05, 0.80	0.015	0.14	0.03, 0.88	0.012
71 and above	0.06	0.02, 0.36	0.010	0.10	0.02, 0.90	0.015
Marital Status						
Married	Ref			Ref		
Single	0.43	0.15, 2.78	0.035	0.33	0.12, 2.63	0.028
Divorced	0.29	0.10, 1.37	0.020	0.19	0.05, 1.70	0.025
Employment Status						
Employed	Ref			Ref		
Unemployed	0.31	0.15, 1.48	0.025	0.30	0.12, 1.66	0.022
Education level						
No Schooling	Ref			Ref		
Primary	0.31	0.10, 1.07	0.045	0.24	0.05, 0.89	0.030
Secondary	0.42	0.20, 1.96	0.020	0.41	0.15, 1.15	0.015
Tertiary	0.21	0.10, 0.77	0.015	0.20	0.05, 0.96	0.020
Attitudes of Health Care Providers						
Good attitude	Ref			Ref		
Bad attitude	0.39	0.25, 0.91	0.022	0.39	0.15, 0.95	0.018
Cultural Beliefs about Prostate Cancer Screening						
Positive beliefs	Ref			Ref		
Negative beliefs	0.40	0.20, 0.90	0.020	0.41	0.16, 0.86	0.015
Awareness of Prostate Cancer Screening						
Aware	Ref			Ref		
Not aware	0.61	0.32, 1.70	0.020	0.65	0.25, 1.63	0.015

cOR = Crude Odds Ratio, *aOR* = Adjusted Odds Ratio, *CI* = Confidence interval

Factors significantly associated with utilization included:

- **Age group:** Older participants were more likely to screen.
- **Marital status:** Married men were more likely to utilize screening services.
- Education level and employment status were positively associated with screening.
- Perceived positive attitude of health workers and positive cultural beliefs significantly influenced uptake ($p < 0.05$).

DISCUSSION

Statement of Principal Findings

This study assessed the knowledge and utilization of prostate cancer screening services among men aged 40 years and above in Kalingalinga Compound, Lusaka. Findings revealed that just over half of the participants (51.6%) had good knowledge of prostate cancer screening, yet only 27.1% had ever utilized screening services. Age, education level, marital status, cultural beliefs, and perceived attitudes of health workers significantly influenced both knowledge and utilization.

Strengths and Weaknesses of the Study

A major strength of the study is its robust sampling method systematic simple random sampling which enhanced the representativeness of the sample. In addition, the use of validated data collection tools (PCKAT and PCSQ) strengthened the study's reliability.

However, being a cross-sectional design, the study cannot infer causality. Social desirability bias may also have affected participants' self-reported knowledge or screening history.

Comparison with Other Studies

The level of knowledge observed in this study is comparable to findings in other Sub-Saharan African countries. For example, a study in Nigeria by Abdullahi (2020) reported similarly low knowledge levels. Likewise, low screening uptake has been consistently reported in regional literature, including the study by Asare *et al.*, (2018) in Ghana, which showed only 18.4% uptake.

Factors associated with knowledge and screening in the present study such as age, education, and marital status mirror the findings of Mahmud *et al.*, (2019) in Bangladesh and Ngoma *et al.*, (2017) in Zambia, who emphasized the role of social support, education, and age in shaping men's screening behaviors.

Notably, marital status emerged as a strong predictor of screening utilization. Married men were more likely to have undergone screening, suggesting the possible influence of spousal support and

encouragement, a finding echoed in literature from Nigeria and South Africa.

Interpretation and Implications

Despite relatively high awareness levels, screening uptake remains critically low. This suggests that awareness alone is not sufficient to drive utilization. Interventions must therefore go beyond information campaigns and address attitudes of health care providers, cultural barriers, and psychosocial support mechanisms.

The association between positive perceptions of health care providers and screening uptake emphasizes the importance of provider patient communication and respectful care. Health care workers need training in culturally competent communication to reduce stigma and fear.

Unanswered Questions and Future Research

This study highlights a need for qualitative research to explore the deeper cultural, emotional, and systemic barriers that prevent men from seeking screening. Longitudinal studies would also be valuable in evaluating the impact of community-based interventions over time.

CONCLUSION

This study revealed that although over half of the participants demonstrated good knowledge of prostate cancer and screening services, actual utilization of these services was low among men aged 40 years and above in Kalingalinga Compound, Lusaka. Key factors influencing both knowledge and utilization included age, marital status, level of education, cultural beliefs, and perceived attitudes of healthcare providers. The findings highlight the critical need for targeted strategies that go beyond awareness creation to address structural, sociocultural, and behavioral barriers.

What is already known on this Topic

- Prostate cancer is a leading cause of cancer-related deaths among men globally.
- Uptake of screening services in Sub-Saharan Africa remains low despite available tools such as PSA and DRE.
- Knowledge alone does not guarantee utilization of health services.

What this Study Adds

- Marital status, positive healthcare provider attitudes, and cultural beliefs significantly influence screening uptake.
- There is a disconnect between awareness and actual use of screening services in high-risk populations.
- Peer and spousal support may play a critical role in increasing prostate cancer screening uptake.

Recommendations

Community Health Education: Develop and implement culturally sensitive education campaigns targeting men aged 40 and above to improve knowledge and challenge myths surrounding prostate cancer.

Healthcare Provider Training: Train healthcare workers in patient-centered communication and respectful care to improve attitudes perceived by clients, thereby increasing trust and service uptake.

Couple-Based and Peer Interventions: Design interventions that involve spouses and male peer educators to encourage mutual support for screening participation.

Policy and Program Support: The Ministry of Health should integrate prostate cancer screening into routine health services at the primary care level and allocate resources to ensure consistent availability of screening tools.

Further Research: Conduct qualitative and longitudinal studies to explore hidden psychosocial and cultural factors that deter men from accessing screening services.

Declarations

Ethical Approval and Consent to Participate

Ethical approval was obtained from the University of Zambia Biomedical Research Ethics Committee (UNZABREC) (Reference Number: 4465-2023), the National Health Research Authority (NHRA) (Reference Number: NHRAR-R-723/01/08/2023), and permission was granted by the Lusaka District Health Office. All participants provided written informed consent prior to participation. Confidentiality and anonymity were strictly maintained throughout the study.

Competing Interests: The author declares no competing interests.

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Authors' Contributions: Madalitso Theo conceptualized the study, collected data, and coordinated the research process. Elijah Mpundu and Elisha Kapya Benkeni participated in data cleaning and analysis. Patricia Katowa Mukwato and Kabwe Mutambo

supervised the work and provided critical input on the methodology and interpretation of findings. The manuscript was drafted by Madalitso Theo and Elijah Mpundu and reviewed and approved by Patricia Katowa Mukwato.

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