

Level of Knowledge and Perceptions of Prostate Cancer Among Men Above 45 Years Seeking Health Services in a Level V Hospital in Kenya

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Abstract: Prostate cancer is the second leading cause of cancer-related deaths in men worldwide. In SubSaharan Africa, including Zimbabwe, high prevalence and mortality are worsened by limited knowledge and poor perceptions of the disease. This study assessed prostate cancer knowledge and perceptions among men aged 45 and above. Using a cross-sectional design, data were collected via self-administered questionnaires from systematically selected participants. Results showed significant knowledge gaps, especially about risk factors and screening effectiveness. Sociodemographic factors like marital status and education influenced knowledge levels, while employment status affected perceptions, particularly among men aged 45-54. A strong link between knowledge and perception highlights the need for targeted education to dispel misconceptions and improve awareness of risk factors and treatment options. Despite generally positive attitudes towards screening, knowledge about available treatments remains limited. The study underscores the importance of tailored public health initiatives, especially focusing on education, to improve understanding and reduce prostate cancer burden. **Keywords:** prostate, cancer patients, knowledge, perception

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I. INTRODUCTION

Prostate cancer is among the most common cancers affecting men globally and is the second leading cause of cancer-related deaths among males (Sung et al., 2022). It ranks third worldwide in cancer diagnoses, representing approximately 7.3% of all new cancer cases in 2020, with over 1.4 million new cases that year (World Health Organization, 2020; WCRFI, 2022). France has the highest prevalence, with an age-standardized rate (ASR) of 99.0 per 100,000 population. Despite fluctuations in incidence rates due to screening practices, prostate cancer remains a major public health concern because it can progress silently until reaching advanced stages, complicating treatment and reducing survival chances (WCRFI, 2022).

The true incidence of prostate cancer in Africa is likely underestimated due to limited cancer registries, but estimates suggest about 22 per 100,000 people, with cases rising among older men, highlighting the urgent need for increased awareness, screening, and early detection (Adeloye et al., 2016). East African countries like Kenya, Uganda, Rwanda, and Tanzania face significant burdens; Kenya's mortality rate is 24.17 per 100,000, ranking 51st globally, partly due to

increased PSA testing. Despite this, many men still present with late-stage disease because of poor awareness, cultural beliefs, and misconceptions, which hinder early diagnosis and worsen outcomes (Seraphio et al., 2021; Deborah et al., 2018).

Research consistently shows that limited knowledge and negative perceptions about prostate cancer contribute to delayed screening, late diagnosis, and poor outcomes. Many men hold misconceptions, such as believing the disease is linked to sexual conduct or that it is untreatable, which discourages early health-seeking behaviors. Studies reveal that a significant proportion of men lack accurate information about symptoms, risk factors, and screening options, further delaying diagnosis and increasing mortality rates. For example, Daberer et al. (2018) found that over half of men had negative views of prostate cancer and were unaware of screening services (Wachira et al., 2018).

In Kenya, awareness levels vary across regions. Rural studies indicate that although many men have heard of prostate cancer, their understanding of causes, symptoms, and screening options remains limited. A study in rural Kenya reported that while 84% of men were aware of the disease,

only a small fraction could correctly identify risk factors or screening methods. Many misconceptions linked the disease to sexual conduct or other unfounded beliefs, creating barriers to early diagnosis and treatment (Mbugua et al., 2021). These findings emphasize that inadequate knowledge, cultural beliefs, and stigma hinder early detection and management.

Despite increasing research, a significant knowledge gap exists regarding prostate cancer awareness in Kenya. Most existing studies focus on rural areas or specific screening programs, leaving urban and peri-urban populations understudied. Since men over 45 are at higher risk, and early detection improves outcomes, this study aimed to assess knowledge and perceptions among men aged 45 and above seeking services in a level V hospital in Kenya. The findings provide important insights into Sociodemographic factors influencing awareness, supporting the development of targeted health education and screening programs tailored to this community.

II. MATERIAL AND METHODS

➤ Research Design

This study used a cross-sectional descriptive hospital-based design, targeting male adults over 45 years visiting Level V Hospital for health services. The sample size of 154 was determined using Fisher et al.'s (1999) formula. Data were collected through a questionnaire with three sections covering Sociodemographic characteristics, knowledge about prostate cancer, and perceptions of the disease.

➤ Inclusion and exclusion Criteria

The inclusion criteria comprised adult men aged 45 years and above seeking health services at the hospital who consented to participate in the study. Exclusion criteria included patients with comorbidities and individuals who did not provide consent to participate.

➤ Data Collection Procedure

A systematic random sampling approach was utilized, selecting every fourth consenting participant. The starting point was determined using a table of random numbers from the pool of eligible participants. Information related to prostate cancer screening was collected from the patients' medical files. Ethical approval was obtained from the Ethics and Research Committee of Kenyatta National Hospital/University of Nairobi and the National Commission for Science, Technology, and Innovation (NACOSTI). Prior to participation, respondents were informed of their rights and the purpose of the study. Only individuals who provided informed consent were included in the study.

➤ Data Analysis

Data were analyzed using SPSS version 25.0. Descriptive statistics, including means, standard deviations, proportions, and percentages, were computed to summarize the data. For inferential analysis, the chi-square test was employed to assess the association between Sociodemographic characteristics of men and their levels of knowledge and perceptions regarding prostate cancer.

III. RESULTS

➤ Sociodemographic Factors

The data shows that Christianity is the predominant religion among respondents at 83.1%, with Islam and other affiliations making up smaller portions. Most participants live in urban areas (65.6%), and their educational levels vary, from no formal education to university graduates. The majority are employed (74.7%), and income levels range from no income to higher earnings, with most earning between 5,001 and 10,000 Ksh. Overall, the study reflects a diverse demographic in terms of religion, residence, education, employment, and income.

Table 1 Sociodemographic Profile of Participants (N=154)

Variables		No	%
Age groups	45-54	97	63%
	55-64	21	13.6%
	above 65	36	23.4%
Marital status	Married	110	71.4%
	Unmarried (single, widowed, separated, divorced)	44	28.6%
Religion affiliation	Christianity	128	83.1%
	Islam	15	9.7%
	Others (Pagan, atheist, traditionalist)	11	7.1%
Residence	Urban	101	65.6%
	Rural	53	34.4%
Level of education	None	19	12.3%
	Primary	56	36.4%
	Secondary	67	43.5%
	College	10	6.5%
	University	2	1.3%
Employment status	Employed/Self employed	115	74.7%
	Unemployed	39	25.3%
Average monthly income	None	10	6.5%
	Less than equal to 5000	33	21.4%
	5001-10000	72	46.8%
	Greater than, equal to 10001	39	25.3%

➤ *Level of Knowledge on Prostate Cancer*

The study of prostate cancer knowledge revealed that while most individuals aged 45-64years had adequate awareness, those above 65years demonstrated limited knowledge. However, statistical analysis using the exact test did not yield a significant association between age groups and knowledge levels of prostate cancer ($X^2 = 5.158$, $p = 0.233$), suggesting that age alone may not be a decisive factor in prostate cancer knowledge disparities. Marital status emerged as a distinct influencer of health knowledge. Married individuals displayed a notably higher propensity for adequate knowledge compared to their unmarried counterparts ($p = 0.015$).

Religion affiliations didn't exhibit a significant association when examined in relation to level of knowledge ($p = 0.594$). Participants from diverse religious backgrounds

demonstrated comparable levels of knowledge of prostate cancer, indicating a relative homogeneity in health education outreach across different faith communities. Educational attainment emerged as a pivotal factor influencing level of knowledge of prostate cancer ($p = 0.000$). Notably, individuals with higher education levels, particularly at the university and college levels, demonstrated significantly greater knowledge levels of prostate cancer.

While no significant association was found between employment status and knowledge levels ($p = 0.314$), a subtle trend suggested that employed or self-employed individuals tended to exhibit slightly higher knowledge levels of prostate cancer. Monthly income demonstrated a significant association with knowledge levels of prostate cancer ($p = 0.002$). Individuals with higher incomes exhibited superior prostate cancer knowledge.

Table 2 Association of Sociodemographic Variables with Knowledge Level

Variables		Inadequate Knowledge n %	limited Knowledge n %	Adequate Knowledge n %	X2	P value
Age	45-54	37 (24.0)	55 (37.7)	5(3.25%)	5.158	0.23
	55-64	10 (6.49)	9 (5.84%)	2 (1.30)		
	above 65	19 (12.33)	17 (11.0)	0(0.00)		
Marital Status	Married	40 (26.0)	63(40.9)	7 (4.55)	7.761	0.015
	Unmarried (single, widowed, separated, divorced)	26(16.9)	18 (11.7)	0 (0.00)		
Religion affiliations	Christianity	53 (34.4)	68 (44.2)	7 (4.55)	1.158	0.594
	Islam	8 (5.19)	7 (4.55)	0 (0.00)		
	Others (Pagan, atheist.)	5 (3.25)	6 (3.90)	0(0.00)		
Level of education	None	17 (11.0)	2 (1.30)	0 (0.00)	39.668	0.000
	Primary	22 (14.3)	34 (22.1)	0 (0.00)		
	Secondary	27 (17.5)	37 (24.0)	3 (1.95)		
	College	0 (0.00)	6 (3.90)	4 (2.60)		
	University	0 (0.00)	2 (1.30)	0 (0.00)		
Current employment	Employed/Self employed	50 (32.5)	58 (37.7)	7 (4.55)	2.463	0.314
	Unemployed/Retire d	16 (10.4)	23 (14.9)	0 (0.00)		
Monthly income	None	8 (5.19)	2 (1.30)	0 (0.00)	18.648	0.002
	≤5000	12(7.79)	19 (12.3)	2 (1.30)		
	5001-10000	36 (23.4)	36 (23.4)	0 (0.00)		
	≥10001	10 (6.49)	24 (15.6)	5 (3.25)		

The Analysis =Chi-Square Tests, while Freeman's Exact Test was Utilized-Small Sample Sizes. The Significance Level= 0.05.
 $n=154$. df =Degrees of Freedom. χ^2 =Chi-Square.

➤ *Perception of Prostate Cancer*

Participants showed a moderate perception of their risk of prostate cancer with a grand mean score of 2.905. Notably, 40.3% of respondents expressed concerns about their likelihood of developing the disease in the future. However, few linked their risk to African race. They perceived prostate cancer as relatively less severe but were worried about its effects on sexual health, such as infertility and erectile dysfunction.

The study found that participants perceived moderate barriers to prostate cancer screening, citing during screening (43.5%), the perceived high cost of screening (48.7%), and the belief that there is often not enough time to undergo the procedure (53.9%) as common obstacles. Despite these challenges, they acknowledged the benefits of screening, such as providing peace of mind and enabling early detection.

The study showed a moderate overall perception of prostate cancer management among participants with a mean

score of 2.771. Majority agreed that treatment decisions should prioritize the patient's quality of life, with over half strongly supporting this view. However, awareness was generally low, with 74% demonstrating a good understanding of available treatment options.

When examining factors associated with perception, no significant correlations were found between age groups and perception ($p=0.268$), nor with marital status, religion, or monthly income ($p > 0.05$). However, residence showed a significant influence, with urban residents having a better

perception compared to rural residents ($\chi^2 = 4.484$, $p = 0.034$). Additionally, education level was significantly associated with perception ($p=0.016$); participants with no formal or only primary education predominantly had poor perceptions, whereas those with higher education levels exhibited more diverse perceptions. Employment status also influenced perception: employed or self-employed individuals tended to have a better perception, while unemployed or retired individuals were more likely to perceive prostate cancer as 'Poor' ($\chi^2=8.114$, $p=0.004$) (Table 3).

Table 3 Association of Socio-Demographic Variables with Prostate Cancer Perception

Variables			Good perception n (%)	Poor perception n (%)	Df χ^2		p-value
Age groups		45-54	14 (9.1)	83 (53.9)	-	2.714	0.268
		55-64	2 (1.3)	19 (12.3)			
		above 65	9 (5.8)	27 (17.5)			
Marital Status		Married	18 (11.7)	92 (59.7)	1	0.005	0.945
		Unmarried (single,)	7 (4.5)	37 (24.0)			
Religion affiliations		Christianity	23 (14.9)	105 (68.2)	-	3.326	0.184
		Islam	0 (0.0)	15 (9.7)			
		Others (Pagan..)	2 (1.3)	9 (5.8)			
Residence		Urban	2 (1.3)	80 (50.9)	1	4.484	0.034
		Rural	4 (2.6)	49 (31.8)			
Level education of		None	0 (0.0)	19 (12.3)	-	11.164	0.016
		Primary	8 (5.2)	48 (31.2)			
		Secondary	12 (7.8)	55 (35.7)			
		College	5 (3.2)	5 (3.2)			
		University	0 (0.0)	2 (1.3)			
Current employment		Employed/Self employed	13 (8.4)	102 (66.2)	1	8.114	0.004
		Unemployed/ Retired	12 (8.4)	27 (17.5)			
Monthly income		None	0 (0.0)	10 (6.5)	-	4.276	0.209
		≤5000	7 (4.5)	26 (16.9)			
		5001-10000	9 (5.8)	63 (40.9)			
		≥10001	9 (5.8)	30 (19.5)			

Chi-Square Tests and Freeman's Exact test Utilized. Freeman's Exact Test-Small Sample Sizes. The Significance Level =0.05.

$n=154$. df =Degrees of Freedom. χ^2 =Chi-Square

IV. DISCUSSION

➤ Knowledge on Prostate Cancer

Among the participants, 78.6% of respondents demonstrated awareness of prostate cancer, aligning with findings from a rural Kenyan community (Mbugua et al., 2021). Despite this high awareness, nearly 19.5% had no prior knowledge, and 1.9% were uncertain, indicating notable gaps. Knowledge was limited, with 39.6% unsure of the prostate gland's location, similar to a study where 51% could not identify it (Satinder et al., 2016), highlighting a persistent lack of basic understanding.

Regarding risk factors, two-thirds (66.9%) of respondents were uncertain about the link between high-fat diets and prostate cancer, reflecting misconceptions prevalent in the community. Myths persisted about family history, age, and ethnicity as risk factors, emphasizing the need for clearer

education. Awareness of risk mitigation through physical activity was moderate, with 38.3% acknowledging its role, comparable to Lagos, Nigeria (Onyeodi et al., 2022), where 24.8% lacked awareness. Uncertainty about smoking (36.4%) and African American descent (34.4%) as risk factors further underscores knowledge gaps.

Screening awareness was limited; 55.8% were unsure of its effectiveness, similar to Kenya (Wachira et al., 2018). Knowledge of specific screening tests was particularly low: 76.6% unaware of Digital Rectal Examination (DRE) and 66.9% unsure about the Prostate-Specific Antigen (PSA) test. Higher awareness was noted in Italy, where education and family history influenced knowledge (Morlando et al., 2017).

Optimism about prostate cancer's curability was high, with 67.5% believing it could be treated successfully if detected early, though 24.7% were unsure. Most respondents

(81.2%) recognized the urgency of treatment, contrasting sharply with only 3.2% who thought immediate intervention was unnecessary. Misconceptions about sexual transmission (16.9%) and sexual activity (7.8%) persisted, along with limited awareness (27.3%) of surgery as a treatment option. Only 9.7% linked an enlarged prostate with prostate cancer, and awareness of symptoms such as difficulty urinating (43.5%), blood in urine or semen (24.7%), and pelvic pain (24%) was limited.

Beliefs about screening were largely positive; 85.7% endorsed universal testing, but 72.7% were uncertain about age-specific screening recommendations. Knowledge about biopsy procedures was poor, with 77.9% unaware of prostate biopsy, although 21.37% of Turkish men (Sungur &

Çalışkan, 2019) knew about it. Awareness of treatment options such as active surveillance, hormone therapy, and radiation was limited, with only 7.1% aware of active surveillance.

No significant association was found between age and knowledge levels ($p = 0.233$). However, younger groups (45-54 and 55-64) exhibited higher percentages of adequate knowledge compared to those over 65. In contrast, Baobaid et al. (2020) reported a more balanced distribution in older adults, with 42% inadequate and 45.2% adequate knowledge.

Marital status showed a significant association ($p = 0.015$), with married respondents demonstrating higher awareness and knowledge levels than unmarried individuals. This finding suggests social support and family influence may enhance understanding. Religion (Christianity, Islam, others) did not significantly influence knowledge ($p = 0.594$), although further research could clarify subtle influences. Education level was a strong predictor; increasing education correlated with higher awareness and knowledge ($p = 0.000$). Participants with higher education levels, such as college or university degrees, exhibited greater awareness, aligning with other studies (Deborah et al., 2018).

Employment status did not significantly impact knowledge levels ($p = 0.314$), but income was influential; higher monthly income was associated with better knowledge ($p = 0.002$). Higher income groups demonstrated greater awareness, emphasizing socio-economic disparities in health literacy.

➤ *Perceptions of Prostate Cancer*

Participants' perceptions of prostate cancer varied, with a high perceived susceptibility (grand mean 2.905), indicating a relatively strong awareness of personal risk, contrasting with Rice et al. (2017). The perceived severity was moderate (mean 1.924), with concerns about reproductive health and sexual function being prominent; 31.2% acknowledged potential infertility, 29.9% feared difficulty urinating, and 42.9% were concerned about erectile dysfunction. Psychological impacts, including reduced sexual interest (41.6%), were significant, yet perceived mortality was low, with only 13.6% viewing prostate cancer as life-threatening.

Perceived barriers to screening, with a grand mean of 2.712, included uncertainties about screening procedures, with many unsure if screening is horrifying or shameful (41.6% and 37.7%, respectively). Financial concerns were prominent; 48.7% believed screening was expensive, and 53.9% strongly agreed that time constraints hinder screening. Physical discomfort associated with screening (e.g., invasive procedures) was also noted.

Attitudes toward screening were generally positive; respondents recognized its benefits for early detection and psychological reassurance. A majority (55.8%) believed early detection leads to successful treatment, while 74.0% strongly disagreed that they are well-informed about treatment options, highlighting a knowledge gap. Trust in available treatments was moderate; 11.0% strongly agreed and 47.4% agreed that treatments are effective. Shared decision-making was valued, with 14.9% strongly supporting and 37.0% endorsing collaborative treatment planning.

Perceptions of management strategies also emphasized early detection's importance, with 50.6% agreeing that timely diagnosis improves outcomes. Some respondents supported active surveillance and less aggressive treatments, reflecting contemporary management trends. Concerns about side effects and monitoring were acknowledged, with 36.4% agreeing on the importance of managing treatment-related challenges.

Age influenced perception; individuals 45-54 had a higher proportion of poor perceptions (83%) compared to those over 65 (17.5%). The data suggest older individuals may have a slightly better perception, although the overall trend indicates the need for targeted education across age groups.

Married respondents had a higher percentage of good perceptions (59.7%) versus unmarried individuals (24.0%), with statistical significance ($p=0.005$). Religious affiliation also influenced perceptions; Christian respondents showed varied perceptions, with some evidence suggesting religious beliefs may shape health attitudes, though further research is necessary.

Urban residents demonstrated a higher prevalence of poor well-being (50.9%) compared to rural residents (31.8%), with a significant difference ($p=0.034$). This divergence could stem from disparities in resource access, health education, or exposure to health services. Higher education levels correlated with better perceptions ($p=0.016$), and employment status also influenced wellbeing; employed individuals reported better overall perceptions than unemployed or retired respondents ($p=0.004$).

Income levels showed a trend toward better perceptions with increasing income, although not reaching statistical significance ($p=0.209$). Yet, other studies have established income as a significant factor in health perception and screening behavior (Rice et al., 2017b; Hafiz et al., 2016).

V. CONCLUSION AND RECOMMENDATIONS

The findings highlight critical gaps in knowledge, misconceptions, and varied perceptions about prostate cancer across demographic groups. Despite high overall awareness, specific knowledge deficiencies such as understanding screening procedures, risk factors, and treatment options persist. Perceptions influenced by socio-economic status, education, marital status, and residence underscore the need for tailored health education interventions.

Targeted educational campaigns should focus on dispelling myths, clarifying screening processes, and emphasizing the importance of early detection. Healthcare providers should prioritize patient education, especially among older, unmarried, and lower-income populations. Enhancing access to screening and information could improve early diagnosis rates and treatment outcomes, ultimately reducing the burden of prostate cancer.

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