



Pan African Urological Surgeons' Association

African Journal of Urology

[www.ees.elsevier.com/afju](http://www.ees.elsevier.com/afju)  
[www.sciencedirect.com](http://www.sciencedirect.com)



Original article

# Knowledge, attitudes and practices of Ugandan men regarding prostate cancer



H. Nakandi<sup>a,\*</sup>, M. Kirabo<sup>a</sup>, C. Semugabo<sup>a</sup>, A. Kittengo<sup>a</sup>,  
P. Kitayimbwa<sup>b</sup>, S. Kalungi<sup>b</sup>, J. Maena<sup>a</sup>

<sup>a</sup> School of Medicine, College of Health Sciences, Makerere University, Kampala, Uganda

<sup>b</sup> Department of Pathology, College of Health Sciences, Makerere University, Kampala, Uganda

Received 22 April 2013; received in revised form 5 August 2013; accepted 6 August 2013

## KEYWORDS

Knowledge;  
Prostate cancer;  
Prostate specific antigen

## Abstract

**Background:** The incidence of prostate cancer in Uganda is one of the highest recorded in Africa. Prostate cancer is the most common cancer among men in Uganda.

**Objective:** This study assessed the current knowledge, attitudes and practices of adult Ugandan men regarding prostate cancer.

**Subjects and Methods:** We conducted a descriptive cross-sectional study using interviewer administered questionnaires and focus group discussions among 545 adult men aged 18–71 years, residing in Kampala, the capital of Uganda. Quantitative data were analyzed with SPSS version 20. Qualitative data were collected using audio recorded focus group discussions, transcribed and analyzed by clustering into themes.

**Results:** The majority of the respondents (324, 59.4%) were aged 18–28 years, 295 (54.1%) had heard about prostate cancer and 250 (45.9%) had never heard about it. The commonest source of information about prostate cancer was the mass media. Only 12.5% of the respondents obtained information about prostate cancer from a health worker, 37.4% did not know the age group that prostate cancer affects and 50.2% could not identify any risk factor for prostate cancer. Participants in the focus group discussions confused prostate cancer with gonorrhoea and had various misconceptions about the causes of prostate cancer. Only 10.3% of the respondents had good knowledge of the symptoms of prostate cancer and only 9% knew about serum

\* Corresponding author. Tel.: +256 781535272.

E-mail address: [nakdiha@yahoo.com](mailto:nakdiha@yahoo.com) (H. Nakandi).

Peer review under responsibility of Pan African Urological Surgeons' Association.



Production and hosting by Elsevier

1110-5704 © 2013 Pan African Urological Surgeons' Association.

Production and hosting by Elsevier B.V. All rights reserved.

<http://dx.doi.org/10.1016/j.afju.2013.08.001>

prostate specific antigen (PSA) testing. Although 63.5% thought they were susceptible to prostate cancer, only 22.9% considered getting and only 3.5% had ever undergone a serum PSA test.

*Conclusion:* There was generally poor knowledge and several misconceptions regarding prostate cancer and screening in the study population. Community based health education programs about prostate cancer are greatly needed for this population.

© 2013 Pan African Urological Surgeons' Association. Production and hosting by Elsevier B.V. All rights reserved.

## Introduction

Prostate cancer is the second commonest cause of cancer related death in men worldwide [1]. In Uganda, prostate cancer is the commonest cancer among men with an age-standardized incidence rate for prostate cancer of 39.6 per 100,000 which is one of the highest rates observed in Africa [2]. The median age at which Ugandan men are diagnosed with prostate cancer is 70 years, which is similar to the age at which most African American men are diagnosed [3]. The prognosis of men diagnosed with prostate cancer in Uganda is poor, only 46.9% will live 5 years after diagnosis compared to 98% among African Americans in the United States of America [3]. In the developed world the probability of being diagnosed with cancer is more than twice as high as in developing countries. However, lower mortality is reported in developed countries due to early detection, while in developing countries, most cancer victims are diagnosed with late stage, incurable tumors, pointing to the need for better detection programs.

Prostate cancer screening is an attempt to diagnose prostate cancer in asymptomatic men. The principles of screening for prostate cancer are measurement of serum prostate specific antigen (PSA) and digital rectal examination (DRE). However, the debate about testing for prostate cancer using PSA and DRE continues [4,5]. The majority of reviews indicate that evidence of benefit from screening for prostate cancer using serum PSA is inconclusive [6,7]. It is also unclear how PSA can be most effectively used in the detection of prostate cancer [4]. However, large population-based studies have shown increased survival benefits in the early treatment of prostate cancer when compared with no active therapy in men with moderately and poorly differentiated disease [8]. Some evidence has also shown that the recent decline in cancer mortality observed in several countries was due to early detection [9].

The majority of Ugandan men are simply not aware of prostate cancer and do not take early urinary symptoms seriously, therefore 60–80% present with very advanced prostate cancer [10]. Although much emphasis has been placed on cancer in women in Uganda, especially breast and cervical cancer, little attention has been given to the cancers affecting men. Currently, there is no formal program targeting prostate cancer which may explain the lack of awareness about prostate cancer among the population.

There are no published data on the prevailing knowledge, attitudes and practices regarding prostate cancer in Uganda. This study was undertaken to assess the current knowledge, attitudes and practices about prostate cancer in Uganda. Hopefully, findings from this study will provide a starting point for health authorities to raise awareness amongst Ugandan men about prostate cancer.

## Subjects and methods

This was a descriptive cross-sectional study, using a random sampling technique. The 545 male participants were all residents of Kampala, the capital of Uganda. Participants were recruited from all five administrative divisions of Kampala, namely Central, Kawempe, Nakawa, Rubaga and Makindye divisions. Kampala had an estimated population of 1,659,000 in 2011 (Uganda Bureau of Statistics). All participants were adults above 18 years. The only exclusion criterion was a prior diagnosis of prostate cancer.

Data were collected between July 1st and September 20th 2012.

- (i) A structured questionnaire on socio-demographic characteristics, knowledge about prostate cancer, including the age most affected by prostate cancer, risk factors, symptoms and prostate cancer screening, attitudes, previous screening history, personal perception of risk of developing prostate cancer, and source of information about prostate cancer was administered by the different investigators. The questionnaires were administered in both English and the local language (Luganda) where necessary.
- (ii) In addition, we conducted 25 audio recorded focus group discussions, five focus group discussions in each division.

Data from questionnaires were computerized for preliminary analysis using EPI info 2002 software, followed by advanced analysis using SPSS version 20. The information was summarized in frequency tables and graphs. Data on the audio recorders from the focus group discussions were transcribed, reviewed and analyzed by the investigators manually by clustering it into themes of knowledge, attitudes and practices of prostate cancer. Information from the questionnaires was summarized in percentages and frequencies, and that from focus group discussions under four different themes: (a) risk factors (b) signs (c) symptoms and (d) screening.

Permission to carry out the study was obtained from the research ethics committee of the College of Health Sciences, Makerere University. All study participants gave informed consent. Permission to tape record the interviews and focus group discussions was obtained from the participants.

## Results

This study involved 545 male respondents. The religion of the respondents was Christian (63.1%), Muslim (31.7%), African traditional religion (2.4%) or other religious denomination (2.8%). The marital status of the respondents was unmarried (57.1%), married (37.6%), divorced (2.6%) or other (2.7%). Majority of the

**Table 1** Age distribution and residence of respondents.

Age group	Frequency	Residence	Frequency
18–28	324 (59.4%)	Central	123 (22.6%)
29–39	140 (25.7%)	Kawempe	105 (19.3%)
40–50	58 (10.6%)	Makindye	116 (21.3%)
51–61	15 (2.8%)	Nakawa	65 (11.9%)
Above 61	8 (1.5%)	Rubaga	136 (24.9%)
Total	545 (100%)	Total	545 (100%)

**Table 2** Sociodemographic characteristics of respondents.

Occupation	Frequency	Level of education	Frequency
Businessperson	150 (27.5%)	Primary	76 (13.9%)
Civil servant	10 (1.9%)	Secondary	192 (35.2%)
Student	143 (26.2)	Undergraduate	227 (41.7%)
Corporate	14 (2.6%)	Postgraduate	26 (4.8%)
Others	228 (41.8%)	Others	24 (4.4%)
Total	545 (100%)		545 (100%)

participants had a secondary level of education (see [Tables 1 and 2](#) for details of the social demographic characteristics of the respondents).

*Knowledge*

Of the 545 respondents, 295 (54.1%) had heard about prostate cancer and 250 (45.9%) had never heard about it. Many of the participants from the focus group discussions thought prostate cancer is gonorrhoea.

In response to the focus group discussion (FGD) guide’s description of prostate cancer, many had this to say:

*“What you are describing is gonorrhoea. You feel pain on urination and there are wounds.”*

Some of the participants seemed disinterested in the topic and when they were asked what they knew about prostate cancer they just replied:

*“We don’t know what prostate cancer is and there is nothing we know about it.”*

Even when asked about the prostate gland, they had no idea what it was or where it was found.

*“Prostate gland! What is that? What does it do?”*

Of the 295 who had heard about prostate cancer, 50.1% had heard about it from the media, 23.3% from friends and relatives, 12.5% from a health worker, 11% from all the mentioned sources and 3.1% from other sources.

Most of the respondents (37.4%) did not know the age group that prostate cancer affects. 21.1% said it mostly affects men above 50 years. While, 14.5% said it mostly affects men between 20 and 30

years, 13.4% men between 30 and 40 years and 13.6% men between 40 and 50 years.

Just over a half of the 295 respondents who knew about prostate cancer could not identify any risk factor for prostate cancer (50.2%) while 11.4%, 12.1%, 9%, 3.9% and 2.9% identified sexually transmitted diseases, diet involving too many fatty foods, multiple sexual partners, obesity and family history, respectively, as risk factors and 10.5% identified other risk factors such as cigarette smoking and race.

Participants had several misconceptions about the causes of prostate cancer. A significant number of participants thought cancer is contagious.

*“When you have sex with a woman who has “candida”, she can put that “candida” dirt in you and it could end up causing cancer.”*

*“Men who begin having sex at early age have more chances of getting prostate cancer.”*

Of the 295 respondents, only 10.3% had good knowledge of the presenting symptoms of prostate cancer while 50.1% did not know any symptoms of prostate cancer. Pain during urination was identified as the most common presenting symptom by 12.5% of respondents. Other symptoms included swelling of the genitals, frequent urination, passing little or no urine, urethral discharge, lack of sexual power, hematuria and others e.g. back pain, identified by 8.6%, 4.4%, 4%, 1.7%, 3.5%, 2.2% and 0.7% respectively. Good knowledge concerning symptoms of prostate cancer was considered when the respondent knew 4 or more of the correct symptoms of prostate cancer.

Most of the 295 respondents (47.9%) did not know any ways of screening for prostate cancer, and the remainder mentioned the following screening methods serum PSA (9%), DRE (9.5%), urine

examination (14.3%), all 3 the above parameters (7.9%), or other methods e.g. genital examination (11.4%).

Fifty one percent of the 295 respondents who knew about prostate cancer did not know the age at which a man should start having prostate cancer screening, and the remainder thought that screening should commence at less than 40 years (15.8%), over 40 years (15.4%), or over 50 years (10.5%).

There were statistically significant associations between knowledge about causes and symptoms of prostate cancer and level of education ( $p=0.03$ ) and age group ( $p=0.0013$ ). There were statistically significant relationships between knowledge about prostate cancer screening and respondents' level of education ( $p=0.02$ ) and age group ( $p=0.013$ ). However, there was no significant relationship between respondents' age group and practice of prostate cancer screening by PSA testing ( $p=0.462$ ).

### Attitudes

Of the 545 respondents, 441 (80.9%) agreed that cancer is a major problem in Uganda, 98 (18%) thought cancer is not a major problem in Uganda and 6 (1.1%) said they did not know whether or not cancer is a big problem in Uganda. Of the 545 respondents, the majority 420 (77%) had never considered going for prostate cancer screening and only 22.9% had ever considered getting screened for prostate cancer. There was no statistically significant relationship between attitudes toward prostate cancer screening and the age of the respondents, ( $p=0.276$ ).

When one of the participants was asked if he had ever considered going for prostate cancer screening, he tensely asked, "For what?" and another young man in his twenties replied "But that cancer is for old men and we are still young, so why should we waste time and money going for checkups?"

Many of the participants did not care about undergoing prostate cancer screening because they did not consider it as dangerous as HIV, so they thought all they needed was to go for HIV testing.

*"We do not fear cancer as much as we fear HIV, so we only know and go for HIV testing because, eh!, HIV came for us!"*

When asked why they had never considered going for prostate cancer screening, they replied thus:

*"Eh! Now you want me to just go for tests and checkups when there is nothing wrong on me, no pain or disease?"*

Around 71% of the 545 respondents thought that early diagnosis of prostate cancer improves the clinical outcome, 14.7% thought early diagnosis does not improve its clinical outcome and 14.7% did not know whether the time of diagnosis affects clinical outcome.

From most of the FGDs, most participants thought that cancer in general is an incurable disease.

**Table 3** Reasons given by respondents for having undergone a serum PSA test.

Reason	n (%)
Because I was advised by a health worker	14 (75%)
Because I had experienced some symptoms	3 (17%)
Because I am an old man	2 (8%)

*"As for me, what I know about prostate cancer is that, just like other cancers, it's incurable. If you get cancer, it is the end of your life. Just say your prayers."*

Overall, 63.5% of the respondents thought they were susceptible to prostate cancer, 14.9% did not think they were susceptible and 21.6% did not know whether they were susceptible.

### Practices

Only 12.3% of the respondents reported that a physician had ever advised them to undergo screening for prostate cancer, the majority (85.7%) reported that they had never been advised by any physician to undergo screening for prostate cancer and 2% reported that they did not remember whether any physician had ever advised them about prostate cancer screening.

Only 15 (2.8%) of the respondents had ever had been screened for prostate cancer, the majority (89.9%) had never been screened for prostate cancer and 7.3% could not remember whether they had been screened.

The majority (86.4%) had never had a serum PSA test, only 3.5% had ever been screened using serum PSA, and 10.1% did not know whether they had ever had a serum PSA test (Table 3). The reasons cited by the participant for getting screened for prostate cancer are shown in Table 3.

Of the 490 respondents who had never been screened for prostate cancer, 32% said it was because they did not know about prostate cancer, 25% thought they could not get prostate cancer, 17% did not know where prostate cancer screening is done, 15% said they were still young, 7% said they had never been given a reason to screen for this cancer and 4% said it was because of other reasons such as unavailability of money and lack of interest.

A common response to the question of why the participants in the focus group discussions had never undergone testing for prostate cancer was:

*"I have not tested for prostate cancer because I have not got any counseling from anyone about testing for that cancer."*

There was a statistically significant association between the age of respondents and the practice of prostate cancer screening ( $p=0.010$ ) – 14.3% of 7 respondents in the 61–70 age group, 13.3% of 15 respondents in the 51–60 age group, 1.9% in the 41–50 age group, no-one in the 29–39 age group, and 2.7% of the 298 respondents in the 18–28 age group had been screened for prostate cancer.

## Discussion

Most of the respondents in our study correctly identified prostate cancer as a major public health problem in Uganda. Awareness of prostate cancer was low, as only 54.1% of respondents were aware of prostate cancer. This was lower than another study among university staff in Nigeria which revealed that 65.6% of the respondents were aware of prostate cancer [11]. However, in a different study carried out in an urban population in Nigeria which comprised mainly of civil servants, 78.8% had not heard of prostate cancer [12].

In our study group knowledge about prostate cancer was generally poor, as 37.4% of respondents did not know the age group prostate cancer affects and only 21.1% correctly identified the right age group. Half of the respondents (50.2%) could not identify any risk factor for prostate cancer, only 10.3% had good knowledge of the presenting symptoms and 50.1% did not know any symptoms of prostate cancer. There is published report on the level of knowledge about prostate cancer in Uganda or East Africa. However, in a study done in Nigeria, Ajape et al. concluded that "there is remarkable lack of awareness of prostate cancer among the Nigerian urban population with 78.8% who have never heard any information on cancer of the prostate. Prostate cancer screening and serum PSA test for screening are globally unknown among them [12].

Our study suggested that the level of education was significantly related to the level of prostate cancer knowledge. In a study done by Ebuehi et al. in Nigeria, awareness of prostate cancer was positively associated with the level of education [11].

In our study, older men scored better than younger men in knowledge about prostate cancer, probably because older men experience a higher frequency of urinary symptoms due to benign prostatic hyperplasia or prostate cancer, resulting in more visits to the physician where prostate cancer is discussed. However, other studies found that older men scored worse than younger men regarding knowledge about prostate cancer. Agho and Lewis studied 108 black men without prostate cancer and found that men younger than 40 years scored higher regarding knowledge about prostate cancer compared to men older than 40 years [13].

In this study, participants that took part in the FGDs that were carried out on university campuses were more likely to have a good level of knowledge regarding prostate cancer, indicating that the level of education was positively associated with knowledge about prostate cancer.

In this study, knowledge regarding the risk factors for prostate cancer was low, since 25% of the respondents had not gone for prostate cancer screening because they thought they were not susceptible and 21.7% did not know whether they were susceptible. Similar findings were reported in a study among older men in New York, where as many as 18% thought that they were at no risk of acquiring prostate cancer while 31% did not know whether they were at risk of acquiring prostate cancer [14].

Respondents from our study generally displayed a negative attitude toward prostate cancer screening, as 77% had never considered going for screening. Significantly, there was no association between

the age of the respondents and attitudes toward undergoing prostate cancer screening.

In our study, 47.9% of the respondents did not know any method of prostate cancer screening. This was lower than in a study from Nigeria by Ebuehi et al. where 58% had heard of a screening test for cancer [11]. Our study revealed that only 9% of the respondents knew about PSA and only 3.5% had undergone PSA screening. These results were similar to a study in an urban population in Nigeria which revealed that only 5.8% of 156 respondents had heard of the PSA test [12]. This was similar to another study among older men in Nigeria which revealed that only 4.5% of the respondents had ever been screened for prostate cancer [15].

In our study, the low level of screening for prostate cancer was due to a lack of knowledge about prostate cancer risk and screening methods. Similar findings were reported in a study in Nigeria among male university staff where 79.5% of the respondents were unaware of prostate cancer screening, 78.4% believed they were not at risk and 66.7% had never received information from a doctor [11]. Similarly, our study results revealed that only 12.3% of the respondents had ever been advised by a health worker to undergo prostate cancer screening. Studies have attributed the lack of participation in prostate cancer prevention activities to economic limitations, lack of awareness, low level of education, fear, cultural and religious beliefs, and traditional attitudes about male gender and physician's attitudes [14,16]. In addition, some researchers have identified sexual dysfunction as a sensitive issue for black men, which discourages their involvement in prostate cancer screening [17,18].

Although older men in this study were more likely to undergo screening for prostate cancer, there was still a very low uptake of screening among older men. This is likely to translate into advanced prostate cancer at presentation, leading to increased morbidity and mortality.

Increased rates of prostate cancer screening definitely lead to increased diagnosis of early stage, potentially curable prostate cancer [19]. However, the population benefit of prostate cancer screening remains unproven, although multinational studies have reported decreasing prostate cancer mortality rates in countries with more widespread screening policies [20,21].

## Conclusion

This study revealed poor knowledge about prostate cancer and a low uptake of prostate cancer screening among Ugandan men. It is therefore important to provide sufficient information about prostate cancer risk, screening and treatment to the general population.

## Author contributions

HN, JM, MK, CS, AK, SK and PK all participated equally toward the conception of the idea for this study, collected data and wrote the draft manuscript. All authors read and approved the final manuscript.

## Conflicts of interest

The authors declare that there are no conflicts of interest.



## Acknowledgements

This work was supported by the MESAU-MEPI Programmatic Award; award Number 1R24TW008886 through the Fogarty International Centre. We thank Makerere University, College of Health Sciences for allowing us to conduct this study. Special thanks go out to the participants in the study.

## References

- [1] Garcia M, Jemal A, Ward EM, Center MM, Hao Y, Siegel RL, et al. Global cancer facts and figures 2007. Atlanta, GA: American Cancer Society; 2007.
- [2] Parkin D, Namboozee S, Mangan FW, Wabinga HR. Changing cancer incidence in Kampala, Uganda, 1991–2006. *Int J Cancer* 2010;126:1187–95.
- [3] Gondos A, Brenner H, Wabinga H, Parkin DM. Cancer survival in Kampala, Uganda. *Br J Cancer* 2005;92(May (9)):1808–12.
- [4] Brawer MK. Screening for prostate cancer. *Semin Surg Oncol* 2000;18:29–36.
- [5] Burack RC, Wood Jr DP. Screening for prostate cancer. The challenge of promoting the informed decision making in the absence of definitive evidence of effectiveness. *Med Clin North Am* 1999;83:1423–42.
- [6] Frydenberg M, Stricker P, Kaye K. Prostate cancer diagnosis and management. *Lancet* 1997;349:1681–7.
- [7] Moss SM, Melia J. Screening for prostate cancer: the current position. *Br Med Bull* 1998;54:791–805.
- [8] Lu-Yao GL, Yao SL. Population-based study of long-term survival in patients with clinically localised prostate cancer. *Lancet* 1997;349:906–10.
- [9] Kleihues P, Stewart BW. WHO/GLOBAL cancer rates could increase by 50% to 15 million by 2020; 2003. Available at: <http://www.who.int/mediacentre/news/releases/2003/pr27/en/>
- [10] Movember Uganda. Facts about Prostate Cancer; 2011. Available at: <http://www.movember.ug/movember/facts-about-prostate-cancer>
- [11] Ebuehi OM, Otumu IU. Prostate screening practices among male staff of the University of Lagos: Lagos, Nigeria. *Afr J Urol* 2011;17(4):122–34.
- [12] Ajape AA, Babata A, Abiola OO. Knowledge of prostate cancer screening among native African urban population in Nigeria. *Nigerian Quart J Hosp Med* 2010;20(2):94–6.
- [13] Agho AO, Lewis MA. Correlates of actual and perceived knowledge of prostate cancer among African Americans. *Cancer Nurs* 2001;24(3):165–71.
- [14] Steele CB, Miller DS, Maylahn C, Uhler RJ, Baker CT. Knowledge, attitudes, and practices among older men regarding prostate cancer. *Am J Public Health* 2000;90(10):1595–600.
- [15] Oladimeji O, Bidemi Y, Olufisayo JA, Sola A. Prostate cancer awareness, knowledge and screening practices among older men in Oyo State, Nigeria. *Int Q Community Health Educ* 2010;30(3): 271–86.
- [16] Royal C, Baffoe-Bonnie A, Kittles R, Powell I, Bennet J, Hoke G, et al. Recruitment experience in the first phase of the African American Hereditary Prostate Cancer (AAHPC) study. *Annals of Epidemiology* 2000;10(8 Suppl.):S68–77.
- [17] Clarke-Tasker VA, Wade R. What we thought we knew: African American males perceptions of prostate cancer and screening methods. *ABNF J* 2002;13:56–60.
- [18] Lambert S, Fearing A, Bell D, et al. A comparative study of prostate screening, health beliefs and practices between African American and Caucasian men. *ABNF J* 2002;13:61–3.
- [19] Farra EF, Carvalhal GF, Vieira RAC, Silva TB, Mauad EC, Carvalho AL. Program for prostate cancer screening using a mobile unit: results from Brazil. *Urology* 2010;76(5):1052–7.
- [20] Bouchardy C, Fioretta G, Rapito E, Verkooijen HM, Rapin CH, Schmidlin F, et al. Recent trends in prostate cancer mortality show a continuous decrease in several countries. *Int J Cancer* 2008;123(2): 421–9.
- [21] Oranusi CK, Mbieri UT, Oranusi IO, Nwofor AME. Prostate cancer awareness and screening among male public servants in Anambra State, Nigeria. *Afr J Urol* 2012;18:72–4.