Awareness of prostate cancer and its associated factors among Ethiopian men, 2021: A cross-sectional study

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Abstract

Background: Prostate cancer is a common type of cancer in men worldwide. It is the world's second most diagnosed disease and the fifth leading cause of cancer-related deaths. In Ethiopia, it is the 3rd most common type of cancer. Awareness of Prostate cancer is key to early detection and prevention. The major risk factors for prostate cancer can be controlled by increasing public awareness.

Objective: We aimed to describe what they knew about prostate cancer by asking questions about prostate cancer-related awareness and we also investigated possible relationships between the variables.

Methods: In 2021, we conducted a cross-sectional study among a systematic sample of men attending the Tikur Anbessa Specialized Hospital in the Urology unit. We used a researcher-administered questionnaire to collect the data and Descriptive statistics and linear regressions were used for the analysis. The strength of the association between the variables was described using the unstandardized β with a 95% Confidence interval.

Results: A total of 250 patients were approached with a response rate of 241(96.4%), with a mean score of awareness of prostate cancer risk factors of 41.2%, symptoms 43.8%, screening 44.7%, and prevention 49.5% respectively. Families with average monthly income >8900ETB (β=2.6, 95%CI:1.1-4.1, P=0.001), heard about prostate cancer (β=5.6, 95%CI:1.5-9.6, P=0.011), having a regular source of care every six months and above (β=4.3, 95%CI: 2.5-6.1, P<0.001), three times, admission history (β=5.4, 95%CI:1.3-9.5, P=0.009), and health care providers (β=10.7, 95%CI 6.6-14.8, P<0.001) as the major source of information followed by the media (β=9.6, 95%CI 5.4-13.8, P<0.001) were significantly associated with awareness of prostate cancer.

Conclusion: Prostate cancer is one of the most important health-related problems among men worldwide. Therefore, a well-planned health education program should be implemented to address the observed awareness gaps.

Background

According to the 2018 Globocan Statistics, there were an estimated 18.1 million people newly diagnosed with cancer, while in the same year, cancer was responsible for 9.6 million deaths (1). In sub-Saharan Africa, cancer persists as a major public health problem (2). Cancer is also a serious health problem in Ethiopia and accounts for about 5.8% of total national mortality; it is estimated that the annual incidence of cancer is around 60,960 cases and the annual mortality is over 44,000 (3). For people under 75 years of age, the risk of being diagnosed with cancer is 11·3% and the risk of dying from the disease is 9·4% (3,4). Factors such as population growth, aging, physical inactivity, and increased prevalence of key risk factors, including those associated with social and economic transition, have been linked to the rise (1, 5). Prostate cancer is a disease of the prostate gland (6). It is a recognized tumor in men and is common worldwide (7). It is the second most common type of cancer diagnosed in men next to lung cancer, and the fifth leading cause of cancer-related deaths in men worldwide (8).

According to the Global Burden of Cancer 2018 report, it accounts for approximately, 1,276,106 new cases and causes 358,989 deaths (3.8% of all deaths due to most male cancers) (9). The real cause of prostate cancer is elusive but, it has risk factors, including aging, family history, and race as non-modifiable risk factors (10), However, physical inactivity, smoking, alcohol consumption, and overweight are controllable risk factors (11,12). The symptoms of prostate cancer may develop gradually, decreased urine flow, frequency, and difficult urination, blood in the urine, painful ejaculation, difficult erection, and bone and pelvic pain (13,14).

The awareness of prostate cancer in men of African descent in the USA, Caribbean, and Sub-Saharan Africa has low levels of information in contrast to American Hispanic men (15,16). A study conducted in, Italy about the awareness of prostate cancer, and 82.1% of the respondents were aware of the existence of prostate cancer. A study conducted in Turkey and Benin showed that the study participants scored 71% and 34 % regarding awareness of prostate cancer (17,18).

In Nigeria Anambra state, 74.1% of participants were aware of the presence of prostate cancer, and 76.1% were aware of one or more symptoms of the disease (19). Among men attending a urology unit In South Africa, 45.4% were aware of prostate cancer and only 11 % were aware of the three major symptoms related to prostate cancer (20). In Uganda, 50.2% of respondents were unaware of any risk factors for prostate cancer but only 9% were aware of the PSA test (21). In a study conducted in Sokoto, Nigeria only 5% of respondents were aware of prostate cancer (22). Similar research was conducted in southwest Nigeria; 47.5 % of respondents were aware of prostate cancer, while 25.1% were aware of the PSA test (23). In a study conducted in Rwanda, 80% were aware of the presence of prostate cancer 64% did not recognize the risk factors of prostate cancer, 68 % were aware of prostate cancer prevention measures, and 64% were aware of prostate cancer tests through PSA testing (24).

In Ethiopia, prostate cancer has recently become more common among men, and it is quietly growing across the country, followed by leukemia and colon cancer, which is the third most common cancer among men (3,4,25). Overall, the prevalence of prostate cancer is reduced by 10%-40%, by raising awareness of lifestyle modification, recognizing the risk factors, prevention, and regular screening of prostate cancer, and also improves the survival of the patients (26,27). As a result, the use of this research was to determine the status of awareness of prostate cancer and its related variables among men going to the Urology unit at TASH in Addis Ababa, Ethiopia, in 2021.

Methods And Materials

Study design Study period Study setting

The institutional-based quantitative cross-sectional study design was conducted from February 8 to March 8,2021, at Tikur Anbessa Specialized Hospital, Addis Ababa Ethiopia. It is located in the Ethiopian capital city of Addis Ababa. It is the largest and most well-known public hospital in Ethiopia, which was established in the early 1960s. The TASH is a center of teaching and referral hospital with approximately 800 hundred inpatient beds. It is the only cancer referral hospital in Ethiopia. This study was conducted at the outpatient department of the Urology unit at the TASH. Urologists, Residents, Surgeons, and Nurses work together to complete daily tasks (28,29).

Population, Sample size determination, and sampling procedure

After obtaining ethical clearance (**36/21SNM**) and permission from the urology unit, we conducted a study among men aged 18 years and older. The sample size for this cross-sectional study was calculated according to the Cochran and William guidelines (30), using the single proportion and correction formula by assuming a 5% marginal error, 95% confidence interval, and 50% population percentage, because the proportion of awareness of prostate cancer has not yet been determined in Ethiopia. In 2020, an average of 535 men (N=535) visited the clinic monthly with an average of 27 visits per day. This resulted in 250 patients (n=250). The average monthly population of 2020 of male patients in the Urology Unit of TASH was [N = 535], and 27 patients were observed daily. In all cases, [n = 250] each day, an average of 13 patients was sampled to maximize the representative sample. A systematic sampling technique was used to select the sample (n=250) using the patient's appointment logbook as a sampling frame. The first patient logged for the day was selected and then every two intervals until the sample size had been realized; Hence, the Urology unit provided health care services to patients who had prostate and prostate-related health problems.

Data collection

Data were collected using a researcher-administered questionnaire. The questionnaire was adapted from the literature (24, 31) and the cancer awareness measurements (CAM) toolkit version 2.1 from the University of London (32). The contents of the questionnaire included socio-demographic characteristics, information-related factors, patient-related factors, and awareness of prostate cancer items. Items in the questionnaire included yes/no questions. The questionnaire was initially developed in English and then translated into Amharic and reviewed by a senior oncologist and senior researcher in the field of study. The questionnaire was pretested in another patient unit using 5% (n=13) of the sample size. Problems with clarity, accuracy and permitted time were identified. Once addressed, the internal consistency (Cronbach's-α) of this study was 0.88 which, is considered adequate. Two registered nurses were recruited and trained to assist with data collection under the supervision of the first author. The data were collected in a quiet room attached to each unit. An information sheet was read to all eligible participants and written consent was obtained **from all participants**.

Study Variables

The dependent variable was the awareness of prostate cancer. The independent variables in this study were socio-demographic (Age, place of residence, marital status, higher level of education, occupational status, and monthly income) sources of information (healthcare provider, friends, media, and others), and patient-related factors (Family history of prostate cancer, admission history and having a regular source of care). The level of awareness of prostate cancer respondents' scores was assessed using the 28 yes or no items of the awareness questionnaire. The total score was calculated out of 100, with a range of 0 to 100. Awareness was scored as the proportion (percentage) of the correct answers. Higher scores indicate better awareness.

Data Quality Management

To manage the quality of data the following measures were taken, the questionnaire was adapted with modification from the Cancer awareness measurement (CAM) and published research. The pre-test was performed and the required corrections were made. The primary investigator provided training to the data collectors. There was supervision, daily, and checking the data collection questionnaire.

Data processing and Analysis

The study was computed using descriptive statistics and linear regression analyses using the epi data version of 4.6.0 software to prevent data entry errors and exported to SPSS version 26 for further statistical analyses. Recoding, categorizing, computing, and other statistical analyses were made. Descriptive analyses (mean, standard deviation, frequency, and percentage) were used to analyze the independent variables. Tables and graphs were used to show the findings. The awareness of prostate cancer score was recorded as a continuous scale in SPSS and scored according to the proportion of correct answers. First, a simple linear regression was performed to select the candidate variables for multiple linear regression. All variables with a p-value < 0.25 during simple linear regression were selected for the multiple linear regression. After the multiple linear regression analysis, variables with a p-value less than 0.05 were statistically significant with awareness of prostate cancer. The strength of the association between the independent and dependent variables was described using the unstandardized β with 95% CI. Finally, multicollinearity was checked by examining both tolerance and Variance inflation factors (VIF). Multicollinearity was calculated, indicating how much of the variability of the listed independent variables was not determined by the other predictor variables in the given model. All of the tolerance scores in the model were >0.10 and the Variance inflation factor (VIF) values were below 10, implying that multicollinearity could not exist. The R square statistic in the model also described a variance 0.8 of which determines the appropriateness of the model used.

Results

Socio-demographic characteristics of the respondents

A total of 250 patients approached and 241 participated in this study resulting in a response rate of 96.4%. Nearly three-fourths of the respondents 180 (74.7%) were from urban areas. The mean age of the respondents was 52.3 (SD ± 13.6) years with a minimum and maximum age of 28 to 97 years respectively. Regarding marital status, more than half 157 (65.1%) were married. In terms of the educational level of the study participants, 106 (44%) had college and above. About 103 (42.7%) respondents were employed. Almost half of the respondents' 114 (47.3%) monthly income was between, and 2251-8900 ETB. The majority of participants 141 (58.5%) had heard about prostate cancer and health care providers as the major source of information 69 (48.9%) followed by the media, and 56 (39.7%) [Table 1].

The patient-related factors of the respondents

About 54 (22.4%) respondents had a family history of prostate cancer while 105 (43.6%) of respondents had a regular source of care for their health, and from those participants, almost half, 116 (48.1%) of them had an admission history of the health institution [Table 2].

Table 1: Socio-demographic characteristics of respondents in TASH, Addis Ababa, Ethiopia, 2021 [n=241]

Variable	Frequency (N)	Percentage (%)
Age continuous	Mean = 52.3	SD = (± 13.5)
Place Residency		
Urban	180	74.7
Rural	61	25.3
Marital status		
Single	36	14.9
Married	157	65.1
Others [a]	48	19.9
Occupation status		
Employee	103	42.7
Merchant	60	24.9
Others [b]	78	32.4
A higher level of education		
College and above	106	44.0
Secondary Education (9-12)	69	28.6
Primary school (1-8)	51	21.2
Others [c]	15	6.2
Monthly Income In ETB		
Low income (≤ 2250)	73	30.3
Middle income (2251-8900)	114	47.3
High income (>8900	54	22.4
Heard about P CA		
YES	141	58.5
NO	100	41.5
Source of information		
Health care providers	69	48.9
Friends	16	11.3
Media [d]	56	39.7

Variables	Frequency (N)	Percentage (%)
Family history		
YES	54	22.4
NO	187	77.6
Family member		
Father	39	72.2
Brother and mother family	15	19.7
Regular source for care		
YES	105	43.6
Not have	136	56.4
Duration of regular care		
< 6 months	65	61.9
≥ 6 months	40	38.1
Admission history		
YES	116	48.1
NO	125	51.9
Duration of admission		
1 time	23	19.8
2 times	61	52.5
3 times	17	14.6
≥ 4times	15	12.9

Table 2: The patient-related factors of the Respondents in TASH, Addis Ababa, Ethiopia, 2021 [n=241]

Awareness of risk factors, symptoms, screening, and prevention of prostate cancer

The minimum and maximum scores for awareness of prostate cancer ranged from 0 to 100. The mean score was 45(±37) from 100. The mean score of awareness of prostate cancer risk factors, symptoms, screening, and prevention was 45% ±37of the total expected score. The main risk factors and symptom mean scores for awareness of prostate cancer were 41.2% and 43.8%, respectively. Many of the study participants, 119 (49.4%) and 72 (29.9%) reported aging and family history were both major non-controllable risk factors for prostate cancer. Almost half of the study participants reported the following modifiable risk factors, Smoking cigarettes 120 (49.8%), lack of fruits and vegetables 114 (47.3%) being overweight 112 (46.5%), and drinking alcohol 107 (44.4%). In addition, the most common symptoms reported by respondents were difficulty urinating 133 (55.2%), frequent urination 128 (53.1%), and hematuria 115 (47.7%) [*Table 3*].

The awareness of prostate cancer screening and prevention mean scores were 44.7% and 49.5% respectively. According to this study, overall prostate cancer screening included two tests, PSA and DRE tests, and study participants were reported that a rectal examination of 110 (45.6 %) and a PSA test of 81 (33.6 %), respectively. Almost half of the participants 134 (56.6 %) reported early screening improved patient survival. Among the respondents, 120 (49.8%) reported that prostate cancer is a disease that can be managed to avoid. For prevention, the majority of respondents 155 (64.3%), to the onset of prostate cancer talked to health professionals as the first intervention to avoid prostate cancer followed by the use of adequate fruits and vegetables 132 (54.8%)[**Table *3***].

Overall awareness of prostate cancer

The mean score of awareness of prostate cancer risk factors, symptoms, screening, and prevention is shown in [**Figure 1**]

Table 3: Distribution of study participants on the awareness of prostate cancer [n=241].

variable	Questionnaire (Do you think that...	Yes N (%)	No N (%)
Risk factors [n=10]	Aging can cause P.CA?	119 (49.4)	122 (50.6)
	Family history can cause P.CA?	72 (29.9)	169 (70.1)
	Drinking alcohol can cause P.CA?	107 (44.4)	134 (56.4)
	Smoking cigarettes can cause P.CA?	120 (49.8)	121 (50.2)
	Lack of adequate fruit and vegetables can cause P.CA?	114 (47.3)	127 (52.7)
	Poor physical activity can cause P.CA?	101 (41.9)	140 (58.1)
	Having multiple sexual partners can cause P.CA?	105 (43.6)	136 (56.4)
	Obesity /overweight can cause P.CA?	112 (46.5)	129 (53.5)
	Genetics can cause P.CA?	72 (29.9)	169 (70.1)
	Prior prostate disease (Prostatitis) can cause P.CA?	71 (29.5)	170 (70.5)
Symptoms [n=6]	Frequent urination is prostate cancer-related symptoms?	128 (53.1)	113 (46.9)
	Difficult urination is prostate cancer-related symptoms?	133 (55.2)	108 (44.8)
	Back pain is prostate cancer-related symptoms?	85 (35.3)	156 (64.7)
	Pelvic bone pain is prostate cancer-related symptoms?	84 (34.9)	157 (65.1)
	Hematuria is prostate cancer-related symptoms?	115 (47.7)	126 (52.3)
	Painful ejaculation is prostate cancer-related symptoms?	89 (36.9)	152 (63.1)
Screening [n=3]	Early screening can increase the survival of patients?	134 (55.6)	107 (44.4)
	Have you ever known about DRE?	109 (45.2)	131 (54.4)
	Have you ever known about PSA?	80 (33.2)	160 (66.4)
Prevention [n=9]	Do you think that P.CA is a preventable disease?	120 (49.8)	121 (50.2)
	Can prevent P CA by stopping smoking?	117 (48.5)	124 (51.5)
	Can prevent P CA by stopping drinking alcohol?	119 (49.4)	122 (50.6)
	Can prevent P CA by Early screening?	113 (46.9)	128 (53.1)
	Can prevent P CA by Doing Regular physical exercise?	110 (45.6)	131 (54.4)
	Can prevent P CA by Combat (fight) obesity?	99 (41.1)	142 (58.1)
	Can prevent by Reduce having multiple sexual partners?	110 (45.6)	131 (54.4)
	Can prevent P CA by talking with health professionals?	155 (64.3)	86 (35.7)

Can prevent P CA by using adequate Fruits and vegetables	132 (54.8)	109 (45.2

Associated factors with the awareness of prostate cancer

In simple linear regression analysis, residency of the respondents, marital status, occupational status, family average monthly income, heard of prostate cancer, source of information, family history, regular source of care with a duration of a regular checkup, and admission history for the specific prostate problem with duration of admission was fitted with the awareness of prostate cancer. Also, in the multiple linear regression analysis, family average monthly income > 8900 ETB, heard about prostate cancer, health care providers, friends, and media from the source of information, family history ≥ 6 months and above a duration of regular source of care, and three (3) times of admission history were significantly associated with prostate cancer awareness.

By holding the effect of all other variables in the model, the study participants had an average family monthly income > 8900 ETB, had increased the score of awareness on prostate cancer by factors of 2.9 times as compared to respondents who had less than 8900 ETB monthly income (β=2.9, 95%CI: 1.2-4.6, P=0.001). Study participants who heard about prostate cancer increased their awareness of prostate cancer score by a factor of 5.3 times as compared to respondents who didn't hear (β=5.3, 95%CI: 1.2-9.4, P=0.011). Study participants who had a family history of prostate cancer increased their awareness of Prostate cancer score by a factor of 6.9 times as compared to respondents who had no family history (β=6.9, 95%CI: 3.1-10.7, P< 0.001).

Respondents who had source information through health care providers, friends, and media (TV, radio, social media) had raised the awareness of prostate cancer score by a factor of 10.8, 10.4, 9.5 times compared to those who did not have of information (β=10.8, 95%CI 6.7-15, P<0.001, β=10.4, 95%CI:5.8-14.9, P<0.001, β=9.5, 95%CI:5.3-13.7, P<0.001) respectively. The Respondents who had a regular source of care every six months and above had increased their awareness of prostate cancer score by a factor of 4.3 times as compared to those who had less than six-month routine checkup for their health (β=4.3, 95%CI: 2.5-6.1, P<0.001). The study participants who have 3 times, admission history had raised their awareness of P CA score by a factor of 5.4 times as compared to those who have less and more frequent admission history with the specific prostate problem (β=5.4, 95%CI:1.3-9.5, P=0.009< 0.001), seen in [Table 4].

Table 4:Predictors of awareness of prostate cancer based on the multiple linear regression analysis models, in TASH, Addis Ababa, Ethiopia, 2021 [n=241].

Associated Variables	Adjusted Unstandardized β coefficient (95% CI)	P-value	Collinearity	
			Tolerance	VIF
Monthly income				
2251-8900	1	1	1	1
<2250	1.5 (-0.3-3.3)	0.10	0.52	1.89
> 8900 ETB	2.9 (1.2-4.6)	0.001	0.75	1.32
Hear about PCA				
NO	1	1	1	1
YES	5.3 (1.2-9.4)	0.011	0.92	1.88
Information source				
Haven't information	1	1	1	1
Health care providers	10.8(6.7-15)	< 0.001	0.11	8.4
Friends	10.4 (5.8-14.9)	< 0.001	0.10	9.46
Media	9.5 (5.3-13.7)	< 0.001	0.29	3.39
Family history				
NO	1	1	1	1
YES	6.9 (3.1-10.7)	< 0.001	0.14	6.71
Regular source of care				
Haven't regular care	1	1	1	1
< 6 months	1.8 (0.32-3.5)		0.73	1.36
≥ 6 months	4.3 (2.5-6.1)	0.025	0.80	1.23
		< 0.001		
Duration of admission				
≥4 times	1	1	1	1
1 time	1.4 (-1.0-3.1)	0.32	0.83	1.20
	0.14 (-1.3-1.6)	0.85	0.84	1.18

2 times	5.4 (1.3-9.5)		0.009	0.34	2.90
3 times					

Note: -**Media** (TV, radio, social media), **ETB:** -Ethiopian birrs, **VIF:** -Variance inflation factor, **(95% CI):** - 95% confidence interval.

Discussion

Our study showed that the proportion of prostate cancer awareness was 45%. This study's awareness score was also lower than the results of a study conducted in Rwanda 75% (24). The major discrepancy among the previous studies and in our study might be due to Study in Rwanda was conducted directly on patients who have an appointment for prostate cancer, this is make difference in the individual awareness toward prostate cancer. In contrast, this finding is different from that of a study conducted in Benin (33). this indicated that a small score was reported in our study about prostate cancer awareness, which was only (34%). This difference may be related to the difference in the study population; the study was conducted on the general population but our study was conducted on patients who visited the urology department. This indicates that patients with specific health problems are more aware than the general population (34).

This study demonstrated that families with a high monthly income had a significant impact on their awareness. This is supported by a study conducted in Denmark and Namibia, which explored a strong socioeconomic distribution in cancer awareness, with individuals with low family income having a poor awareness of symptoms, risk factors, prevention, and screening (35,36). Respondents with more income were more concerned about their health than those with lower incomes. Furthermore, economic development in one country is increasing school enrollment and educational attainment, which improves people's educational levels and health status. Furthermore, people with a high income were encouraged to learn more about their health and health-related status.

Regarding the sources of information about prostate cancer, 141 (58.5%) of the respondents had asked about prostate cancer from a different source. The respondents were heard about the existence of prostate cancer from different sources. Health care providers, media, and friends were significantly associated with the awareness of prostate cancer. Health care providers are the most common source of information, followed by the media (TV, radio, and social media). This is supported by another study conducted in the following countries which indicated that the main source of information was health care providers and the media. A study conducted in Saudi, and Rwanda, found that the main source of information was health care providers (24, 37). In addition, a study conducted in Italy, Nigeria, and

Uganda noticed that the main source of information was the media (19,21,31). This may be because the Ethiopian media did not provide adequate information and awareness of prostate cancer or health care providers provided more information than the media.

Nearly one-fourth of the respondents 22.4% had a family history of prostate cancer. Positive family history is a significant risk factor for prostate cancer and is significantly associated with awareness of prostate cancer. This is supported by different studies, the risk of prostate cancer rises the number of affected family members, with men with two or three first-degree relatives having a fivefold and eleven-fold increased risk of developing prostate cancer, respectively. The aim of any type of cancer with a family history should have been to provide enough information to increase awareness about the disease's risk factors, symptoms, early detection, and prevention. It also allows for the implementation of an initial management plan and follow-up action for the possibility of a family member's susceptibility (38).

Furthermore, in this study, 43.5% of respondents who had a routine source of care were associated with prostate cancer awareness. The respondents who had a regular source of care every six months or more had a significant association with Awareness of prostate cancer. This study is in line with a study conducted at the Texas university (39). Periodic health assessments or examination is relevant to health professionals or health institutions where the person usually goes to his/her health and health-related conditions if he/she is ill or needs advice. When patients received regular and routine care services from health care providers, their awareness improved accordingly (39).

Nearly half of the participants 48.1% had a history of admission to a health facility for prostate and prostate-related problems, among those, who were admitted 3 times, admission history was significantly associated with awareness of prostate cancer as compared to those who had less frequent admission history. This finding is supported by previous studies conducted in South Africa (40). According to the European Charter on Patients' Rights (41), a patient's right to be aware of their health condition during admission is a basic human right and an important part of modern health care practice.

Frequent admission of patients also encourages awareness of patients concerning their health and health-related situations. Globally, during admission, the number of participants who were aware of the different factors of health care service factors ranged from 18.9% to 84.1% (40). As a result, patients who have had previous admissions are more aware of their wellbeing and health-related problems than those who have not. The relationship between health care providers and patients should include empowering patients to be more aware of their health and health-related issues.

Strength and limitation of the study

The study instrument was comprehensive, pretested, and modified before the data collection. The data were double entered and validated using the Epidata Version 4.6.0 entry before analysis. However, the findings are restricted to a sample of Tikur Anbessa specialized hospital patients, thus limiting their generalizability to the whole country. Our study sample size was small, which limits our generalizability of the findings on awareness of prostate cancer and its associated factors. Therefore, a large sample size is needed to incorporate other aspects of respondents' awareness of prostate cancer. The research may also be limited by the fact that these were based on the participants 'self-reports, which can increase social desirability bias.

Conclusion And Recommendations Of The Study

In conclusion, the proportion of awareness score among respondents of male patients attending Tikur Anbess specialized hospital was low relative to previous studies. More than half of the study participants had an awareness score below the mean value. Health care providers are the main source of information followed by the media. Families' average monthly income, heard about prostate cancer, having a regular source of care every six months or more, three-times, admission history, and source of information were all significantly associated with Prostate cancer awareness. This strong association between prostate cancer awareness and associated factors is essential for understanding and controlling the disease. Improving awareness of the cancer patients, by implementing a multidisciplinary team approach, promoting an awareness campaign, emphasize male patients with cancer, and conducting a further study with larger samples were recommended.

Declarations

Acknowledgments

Author Contributions

All authors made significant contributions to the conception and design, data acquisition, or data analysis and interpretation; participated in the drafting of the article or critically revised it for important

intellectual content; agreed on the journal to which the article would be submitted; gave final approval of the version to be published; and agreed to be responsible for all aspects of the work.

Ethics approval and consent to participate

The study was conducted in accordance with the declaration of Helsinki. An ethical clearance letter was obtained from the ethics Institutional Review Board of Addis Ababa University, College of Health Sciences, school of nursing and midwifery (Protocol № 36/21SNM).

Availability of data and material

The data are available from the corresponding author and will be provided upon reasonable request.

Source of funding

The cost of the study was covered by Addis Ababa University.

Consent for publication

 Not applicable.

Disclosure

All authors report no conflicts of interest in this work.

Dedication

To my advisor, Dr. Ayinalem Abreha. He was a well-known oncologist and director of the AAU Cancer Centre who devoted his life to the care of cancer patients at TASH, where he worked for several years. He will be recognized for his compassion, humility, valued contribution to my life.

Abbreviations

AAU, Addis Ababa University; BPH, Benign Prostate Hyperplasia; DRE, Digital Rectal Examination; ETB, Ethiopian Birr; P CA, Prostate Cancer; PSA, Prostate-Specific Antigen; TASH, Tikur Anbessa Specialized Hospital.

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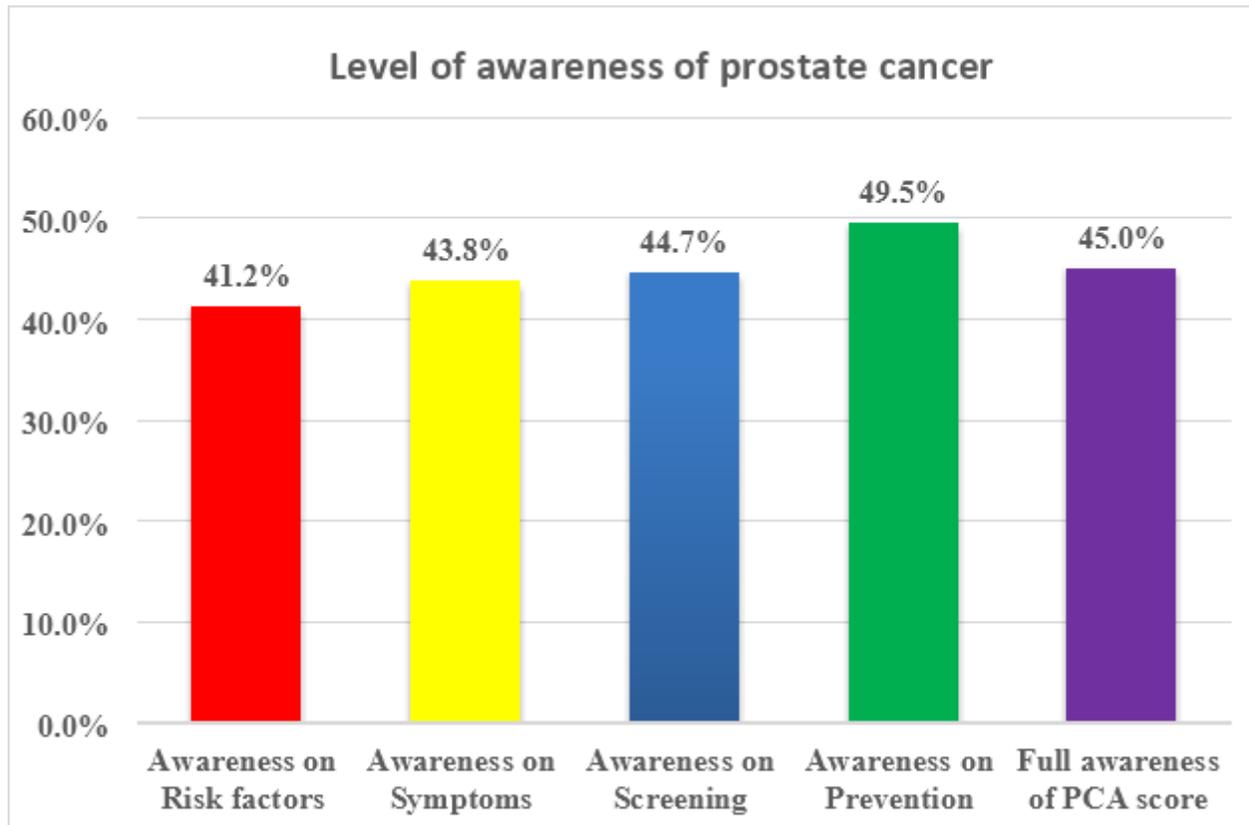
Figures

Figure 1

Overall awareness of prostate cancer among male patients in the Urology unit at TASH, Addis Ababa, Ethiopia, in 2021.