Original Article

Awareness about prostate cancer and its screening in Medina, Jeddah, and Makkah, Saudi Arabia population

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Abstract

Background: Prostate cancer (PCa) is a global burden on public health; it has been ranked as the second common cancer worldwide, with 1.3 million new cases in 2018. Developed countries have a higher incidence than in developing countries. Because of the lack of studies on PCa in Saudi Arabia, our study aims to measure the awareness about PCa and knowledge of PCa screening practices among men in Medina, Jeddah, and Makkah, Saudi Arabia.

Methodology: A cross-sectional study conducted among males in Medina, Jeddah, and Makkah, Saudi Arabia, from 2nd to 10th July 2020, using a validated questionnaire. The sample size was 1212 participants. Data collected through an online questionnaire. All data analyses performed using (SPSS) software, using the Chi-square test for bivariate analysis. All levels of significance were set at $P < 0.05$.

Results: We collected 1212 completed surveys, with mean ages of 36 years (standard deviation ± 12.77). We found that 77% of participants heard about PCa, and 52.5% heard about PCa screening tests. This study showed that only 10.6% of all participants had good knowledge, 41.9% had fair knowledge, and 47.5% had poor knowledge. Only 3.9% of participants had experienced the prostate-specific antigen test.

Conclusion: The study showed that the level of knowledge of PCa is low. Thus, community and individuals should collaborate to increase awareness by having more awareness campaigns, disseminating the information through the media, and encouraging men to do screening tests as indicated. In addition, including more Saudi Arabia cities in future studies is preferable to have more precise outcomes.

Keywords: Awareness, cancer, Jeddah, KSA, Makkah, Medina, prostate, prostate cancer, Saudi Arabia, screening

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INTRODUCTION

Prostate cancer (PCa) is a global burden on public health; it has been ranked as the second common cancer worldwide, with 1.3 million new cases in 2018.[1] The incidence rate of PCa varies across the world, where developed countries have a higher incidence rate than those from developing countries.[2] This variation might be due to prostate-specific antigen (PSA) testing.[3]

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By 2030, the new cases of PCa predicted to increase to 1700,000 worldwide per year, with around 500,000 deaths due to this disease.[4] Recommendations advised screening for PCa by digital rectal examination and PSA testing. Starting the screening at the age of 40 for specific populations provides the only way to reduce mortality from cancer.[5,6] It is well known that early detection of certain grades of PCa leads to a higher remission rate. Hence, public awareness and knowledge of PCa risk factors and red flags are necessary.[7]

According to the World Health Organization, fatality percentages and the incidence of PCa, specifically in the Arab region, have been increased and anticipate that the numbers will increase.[8] Although in the Arab area, in contrast to the USA, PCa in advanced stages and spread progression were noticed to be more presented.[9,10] PCa showed a lower mortality rate by 40% since 1990 in the USA and thought to be due to good screening practices and enhancing treatment.[11] In Saudi Arabia, PCa has become the second most common cancer among males who are older than 60 years old.[12] Referred to an age-standardized incidence rate of PCa between 2001 and 2008, it was estimated to be 5.1 cases per 100,000 males in Saudi Arabia.[13]

A study done in Jamaica, revealed that 88% of the participants have a positive attitude towards screening of PCa and to prevent it, while 84% have moderate knowledge of PCa.[14] Moreover, a study done in Turkey showed that 88.4% of the participant know that PCa is a treatable disease if diagnosed early.[15] Another study in 2017 in Italy showed that 82.1% of participants informed them that they heard about PCa previously, and 31.8% of them have heard about PCa from a doctor.[16]

In addition, in Kenya, there was a high level of awareness in about 80% of the respondent.[17] Furthermore, a study done in Nigeria showed that 47.3% of the participants were aware about PCa.[18]

On the other hand, a study done in Turkey showed that 20.75% participants had heard previously about the PSA test, and only (5.03%) of participants did the screening program regularly.[19]

According to a comparative multicenter study in Saudi Arabia, Egypt, and Jordan, the majority of the participants had poor knowledge and fair attitude toward PCa examinations and screening practices.[20] Moreover, another study done in Oman showed that 90.8% of participants did not know that PCa is one of the most prevalent cancers affecting men in Oman.[21] The most recent regional study was done in Riyadh and showed that 82.3% of participants heard about PCa and 37.8% did not know the symptoms of PCa.[22]

According to a study done in Saudi Arabia, the incidence of PCa had increased by 8 folds from 1990 to 2016.[23] In Saudi Arabia, about half of the population is younger than 29 years old. Therefore, we should do more effort and exploration across the rest of the Kingdom to reveal the incidence of cancer and mortality in the society to implement management, screening, and prevention strategies in our country.[23,24] Because of that and the lack of enough studies about PCa in Saudi Arabia, our study aims to measure the awareness, knowledge, and screening practices of PCa among men in Medina, Jeddah, and Makkah, Saudi Arabia.

METHODOLOGY

This study comes with an objective of assessing PCa awareness and knowledge of screening practices among men in Medina, Jeddah, and Makkah, Saudi Arabia. This study was approved by Dr. Soliman Fakeeh Hospital Scientific Research Committee (DSFH IRB). It is a cross-sectional study, carried out in Medina, Jeddah, and Makkah, Saudi Arabia, from the 2nd of July to 10th, 2020. A sample size of 1212 participants, comprising of males aged 18 years old or older who agreed to participate, were included in this study. Those who had been excluded were males who had been diagnosed with PCa before.

A valid well-structured questionnaire, adapted from a previous study, was used after obtaining consent from all participants.[25] The questionnaire was initially in English, translated to Arabic, as Arabic is the native language for the majority of the population in Saudi Arabia. The translation process is done under the supervision of a specialist in this field, and to ensure the successfulness of the translation process, the survey was disseminated to 25 volunteers who were excluded after they answered the questionnaire. Finally, we asked them if they understand the questions easily and correctly to make sure that the translated version is clear.

The questionnaire was sectioned to sociodemographic characteristics (age, sex, nationality, place of origin, marital status, educational level, family history of PCa, and previous diagnosis of PCa), knowledge of PCa, and screening practices.

On a scale of 0–15, participants' knowledge of PCa was graded. One point was given for a correct response, while

an incorrect response or I don't know answers earned no points. Those who scored ≥11 of 15 points were considered to have "good" knowledge; those who scored 6–10 of 15 points were graded as having "fair" knowledge, while those who scored <6 of 15 points were graded as having "poor" knowledge.

Data were collected through an online questionnaire distributed to the general population living in Medina, Jeddah, and Makkah. Collected data were analyzed using the IBM SPSS version 25 computer statistical software package IBM Corp., located in Armonk (N.Y., USA), using a frequency test for univariate analysis, and Chi-square test for bivariate analysis. P =0.05 was used as a cut-off point for significance.

RESULTS

In this study, we aimed to assess the extent of knowledge and attitude of PCa and its screening among men in Medina, Jeddah, and Makkah. The majority of the participants were Saudi (83.3%). Participants' ages ranged from 18 to 77 years old, with a mean age of 36 ± 12.77 years. 75.8% of the participants had an academic education degree. Most of the respondents (94.3%) did not have a family history of PCa [Table 1]. 77.5% of participants heard about PCa and the source of information about PCa was from social media in 40.3% of the population [Figure 1].

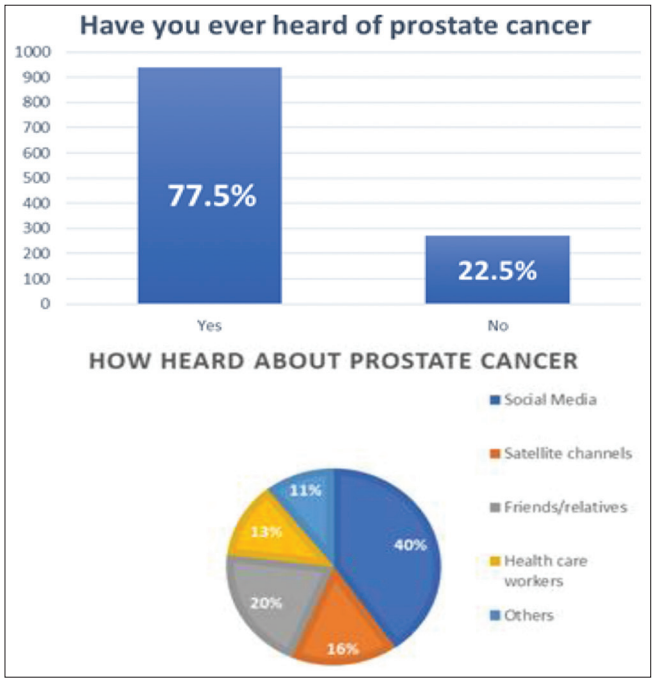

Figure 1: The percentage of heard about prostate cancer and how heard about it

Regarding at overall level of knowledge of PCa, almost half of the participants (47.5%) had poor knowledge and 41.9% had a fair knowledge of PCa, while only 10.6% had good knowledge of the disease [Figure 2]. There was no significant difference between total knowledge score across all demographic data variables except for the educational level and marital status, with a P value of 0.004 and 0.033, respectively [Table 2], which means that higher education and married have more knowledge compared to the rest of demographic data.

Looking at the general knowledge of PCa, we found that 69.7% did not know the risk factors of PCa and only 34.1% know the signs and symptoms of PCa [Table 3]. There is no significant relationship between risk factors and signs and symptoms with all demographic variables except education level and marital status [Table 4], and this show that higher education and married have more awareness about the risk factor, signs, and symptoms of PCa.

Table 1 Characteristics of the study population

Characteristic	Response	No. of participants (%)
Gender	Male	1212 (100%)
Age	18-25	374 (30.9%)
	26-45	544 (44.9%)
	46-65	276 (22.8%)
	>65	18 (1.5%)
Nationality	Saudi	1010 (83.3%)
	Non-Saudi	202 (16.7%)
place of origin	Medina	404 (33.3%)
	Jeddah	404 (33.3%)
	Makkah	404 (33.3%)
Education level	Uneducated	1 (0.1%)
	Elementary	5 (0.4%)
	Intermediate	20 (1.7%)
	High school	267 (22.0%)
	Academic	919 (75.8%)
Martial state	Single	514 (42.4%)
	Married	672 (55.4%)
	Divorced	23 (1.9%)
	Widowered	3 (0.2%)
Family history of prostate cancer	Yes	69 (5.7%)
	No	1143 (94.3%)

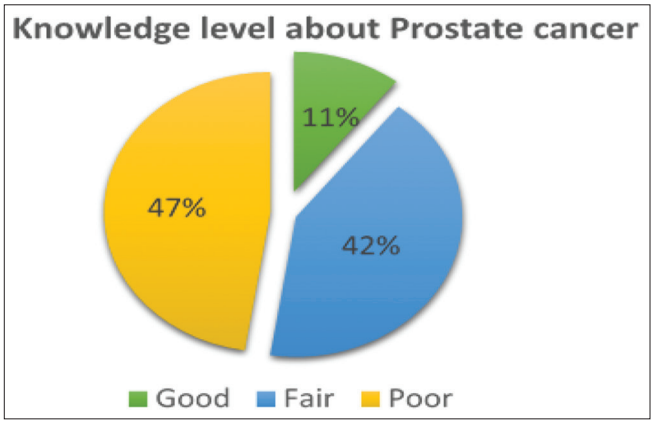

Figure 2: The ercentage of knowledge level about prostate cancer.

Table 2: Between-demographic differences in knowledge level

Variable	Subgroup	Knowledge level		
		Poor	Fair	Good
Nationality	Saudi	39.60%	35.10%	8.60%
	Non-Saudi	7.90%	6.80%	2.00%
	P		0.778	
Place of origin	Medina	16.60%	13.00%	3.80%
	Jeddah	15.80%	14.40%	3.10%
	Makkah	15.10%	14.50%	3.70%
	P		0.503	
Education level	Uneducated	0.00%	0.00%	0.10%
	Elementary	0.40%	0.00%	0.00%
	Intermediate	1.20%	0.30%	0.10%
	High school	11.70%	8.30%	2.00%
	Academic	34.20%	33.30%	8.40%
	P		0.004	
Martial state	Single	21.10%	16.30%	5.00%
	Married	25.20%	25.10%	5.20%
	Divorced	0.10%	0.50%	0.40%
	Widower	0.20%	0.00%	0.00%
	P		0.037	
Family history of prostate cancer	Yes	2.50%	2.30%	0.90%
	No	45.00%	39.60%	9.70%
	P		0.318	
Age	18-25	14.20%	13.00%	3.60%
	26-45	22.70%	17.80%	4.40%
	46-65	10.10%	10.30%	2.40%
	>65	0.60%	0.7	0.20%
	P		0.583	

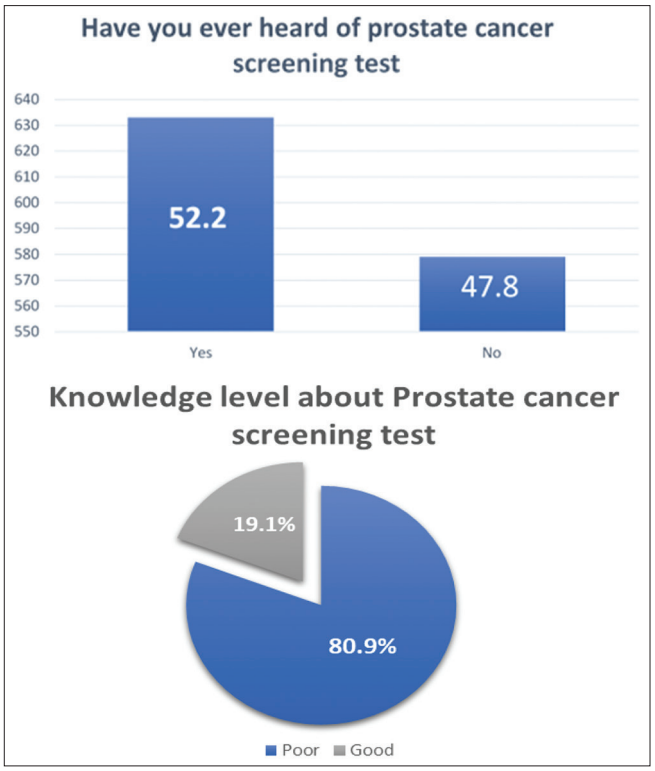

Figure 3: The percentage of heard about prostate cancer screening test and the knowledge level about it

Coming to the awareness about screening practices of PCa, we found that 80.9% of respondents did not know the screening tests for PCa and about half (52.2%) of the participants had heard about PCa screening tests [Figure 3]. Furthermore, 3.9% of the participants had experienced the PSA test, and 43% of them had it once.

Moreover, about two-thirds of tested participants (62.5%) had a PSA test because their doctor recommended it for them. 86% of participants who did not have been tested before, the cause was that they were not aware of the PSA test or they thought that they did not need to have the test. Besides, there is no significant association between knowledge of screening practices and all demographic variables, apart from a significant relationship with a family history of PCa ($P > 0.001$) and with educational level ($P = 0.02$) [Table 4]. The positive family history of PCa and higher education are reasons to increase knowledge of screening practices.

DISCUSSION

This study assessed awareness of PCa and knowledge about screening practices among men in Medina, Jeddah, and Makkah, Saudi Arabia. Although the second most common cancer that affects Saudi men aged 60 and above is PCa.[12] However, the levels of the overall knowledge of PCa in this study were low in 47.5% and the awareness of PCa screening test was not known in 80.9%, despite that the majority (77.5%) of the responders heard about PCa and 52.2% heard about PCa testing before.

Our results are in consonance with the findings in a study conducted in Riyadh city, which reported that the knowledge of PCa was poor with a fair attitude toward examination and screening.[26] These findings do not differ from a more extensive study conducted in Saudi Arabia, Egypt, and Jordan which showed poor knowledge and fair attitude toward PCa examination and screening practices.[20] Similar findings have also emerged from other countries such as Tanzania and Nigeria, indicating their poor knowledge about PCa and its screening.[25,27]

As noted in our study and previous ones, sociodemographics and educational levels have been found to positively impact awareness and overall knowledge of PCa.[15,22,28] Surprisingly, only 15.9% of our participants who have a positive family history of PCa had good knowledge. This lack of knowledge of PCa necessitates putting efforts into educating men for decision-making regarding PCa screening activities.

It is well established that poor knowledge is one of the reasons for low PSA testing.[29] According to a study held

Table 3: Respondents' knowledge of prostate cancer

Variabels	Correct response Frequency (%) *n*=1212
Risk Factor	
As age increases (old age)	828 (55.9%)
Family history of prostate cancer	862 (58.2%)
Being black (black race)	98 (6.6%)
Obesity	441 (29.8%)
Consumption of fatty foods	562 (37.9%)
Sign and Symptoms	
A need to urinate frequently especially at night	384 (25.9%)
Difficulty starting urination or holding back urine	793 (53.5%)
Weak or interrupted flow of urine	743 (50.2%)
Difficulty in having an erection	619 (41.8%)
Painful urination or ejaculation	675 (45.6%)
Blood in urine or semen	625 (42.2%)
Pain in the pelvic area or bones (lower back, hips or thighs)	525 (35.4%)
Asymptomatic	231 (15.6%)
Screening Test	
Digital Rectal Examination	485 (32.7%)
Prostate Specific Antigen (PSA) test	389 (26.3%)

Table 4: Between-demographic differences and risk factor, sign and symptom, and screening

Variables	Subgroup	*P*
Nationality	Risk Factor	0.978
	Sign and symptom	0.892
	Screening	0.922
Place of origin	Risk Factor	0.174
	Sign and symptom	0.451
	Screening	0.376
Education level	Risk Factor	0.006
	Sign and symptom	0.042
	Screening	0.024
Martial state	Risk Factor	0.035
	Sign and symptom	0.049
	Screening	0.073
Family history of prostate cancer	Risk Factor	0.609
	Sign and symptom	0.487
	Screening	0.001
Age	Risk Factor	0.14
	Sign and symptom	0.487
	Screening	0.255

in Jamaica, men sampled at a mass screening clinic found to have moderate knowledge about PCa.[14] As we believe, good knowledge has influenced their attitude toward screening. This may explain our result where only 3.9% of the participants had been screened for PCa. Apart from that, 58.2% of our participants were aware of that positive family history of PCa is considered a risk factor; moreover, 19.1% of participants who had been screened, had a family history of PCa.

Moreover, among the reasons for participants' abstinence of screening, revert to their own believes, as most of them do not think that they are at high risk for PCa. A similar finding has been observed in a study conducted in Italy, and this could be due to the mean ages included in both studies, as 79.5% of the participants who think that they are not at risk were younger than 46 years old.

In this study, the participants stated that the vast amount of their PCa knowledge came from using social media, an effective intervention for health promotion, especially for certain populations who are more likely to be disadvantaged, for instance, youth, older age, low socioeconomic status, and rural areas.[30] However, social media's benefits in changing an individual's behaviors remain debated.[31]

On the other hand, a crucial finding from this study was that only 13% of the participants gained information from a health-care worker, which questions the physicians' practices of PCa screening and counseling. A study held in Saudi Arabia found physicians' knowledge and attitude toward this issue was not good. Therefore, only 54% were practicing PCa counseling and screening.[16]

This is a cross-sectional study and, consequently, comes with limitations inherent to this study design. Furthermore, data collection was based on an online questionnaire, resulting in limited sampling, as reaching a certain population will be more difficult, elderly, for example, have limited access to online surveys. Studies with a larger group of men in different geographic areas are indeed recommended.

CONCLUSION

The study showed that the level of knowledge and awareness of PCa is low. Thus, community and individuals should collaborate to increase the awareness and knowledge level by having more awareness campaigns, disseminating information through social media, and encouraging men to do screening tests as it helps in early detection. In addition, including more cities of Saudi Arabia in future studies is preferable to have more precise outcomes.

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Conflicts of interest
There are no conflicts of interest.

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