Determinants of Behavioral Intentions to Screen for Prostate Cancer in Omani Men

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ABSTRACT

Objective: This study aimed at exploring the perceived barriers and intention to screen for prostate cancer (PCa). Methods: A survey questionnaire and a descriptive design were used to collect data from 129 Omani men above the age of 40 years. The questionnaire comprised the International Prostate Symptom Score (IPSS), barriers, and intention to screen scales. The participants were recruited from barbershops located in two cities of Oman. Results: The mean IPSS score was 8.31 ± 3.34 and the majority of participants had mild prostate cancer symptoms (60.4%). The others had moderate (28.7%) or severe symptoms (10.9%). Most men had low-to-moderate intention to screen using the method of digital rectal examination (DRE) (76%) and prostate-specific antigen test (PSA) (69.8%). The most common barriers to screening were fear of finding out something wrong (48.1%), not knowing what will be done during screening (54.3%), belief that PCa is not a serious disease (55.8%), and belief that DRE is embarrassing (56.6%). The significant determinants of intention to screen using DRE were perceived threat of the disease ($P = 0.006$) and past information from doctors that one has any prostate disease ($P = 0.017$). The determinants of intention to screen using PSA were perceived threat of the disease ($P = 0.025$), perceived general health ($P = 0.047$), and past information from doctors that one has any prostate disease ($P = 0.017$). Conclusions: The participants had diminutive intention to undergo PCa screening. Interventions aimed at enhancing PCa disease and risk awareness may help to reduce the barriers and increase PCa screening uptake.

Key words: Cancer screening, early diagnosis, men, Oman, prevention, prostate cancer

Introduction

Prostate cancer (PCa) is increasingly affecting men around the world.[1] Worldwide, PCa is the 2nd most common cancer among men accounting for 15% of all cancers diagnosed in men.[2,3] An estimated 307,000 deaths were attributed to PCa in 2012, making it the 5th leading cause of cancer death in men.[3] The highest incidence rates of PCa are found in Western countries.[4] The regions with the highest
incidence rates of PCa include Australia/New Zealand (111.6/100,000) and North America (97.2/100,000). The high rates in Western countries have been attributed to the widespread use of prostate-specific antigen test (PSA) screening. For instance, in the USA, the age-adjusted incidence and mortality rate of PCa in men of all races are 156/100,000 and 24.7/100,000, respectively. The incidence (233.8/100,000) and mortality rates (54.2/100,000) are higher among African-American men.

In the Middle East, the estimated age-standardized incidence and mortality rate of PCa are 9.7/100,000 and 6.2/100,000, respectively. In this region, countries such as Lebanon (27.6/100,000), Turkey (19.1/100,000), Bahrain (13.3/100,000), and Kuwait (12.6/100,000) have the highest incidence rates for PCa. While countries such as Oman (5.8/100,000), Egypt (6.6/100,000), and Saudi Arabia (6.1/100,000) have moderate incidence rates, mainly due to the limited number of asymptomatic men undergoing PCa screening. In the Middle East, PSA screening is not routine and the other methods of screening such as transrectal sonography are only available in regional hospitals, leading patients to present with more advanced disease.

Among the countries in the Gulf Cooperation Counties, Oman has the 2nd highest incidence of newly diagnosed cancers (11%) after Saudi Arabia (71.8%). In Oman, the incidence of PCa has increased from 5.1/100,000 in 2000 to 7/100,000 in 2010, and is now the 3rd most frequent cancer among men. Omani men affected by PCa are diagnosed late and present with higher grade tumors according to the Gleason’s scale. A study of prostate biopsies in Oman (n = 1163) showed that these men had nodular hyperplasia (88.5%), intraepithelial neoplasia (60.6%), and nodular hyperplasia (88.5%).

The risk factors for PCa are present in Oman and will continue to rise as the number of older adults increase. The life expectancy of Omanis has increased from 50 years in 1970 to 73.9 years in 2010 and today 5% of the population is above the age of 60 years. This change is consistent with the risk profile of PCa which includes age above 50 years, family history of the disease (having a brother or father with the disease), and ethnicity. One of the essential steps toward reducing late diagnosis, morbidity, and mortality of PCa is increased uptake of screening. The findings from the European randomized study of screening for PCa show that screening reduces the risk of developing metastatic PCa by 3.1/1000 men. The findings of an earlier randomized study show that PSA-based screening reduces the rate of death from PCa by 20%. However, in order for men to benefit from these outcomes of PCa screening, they have to be able to access it.

Various studies have confirmed that men face several barriers which curtail their intention to attain PCa screening. The intention and actual attendance of PSA test and prostate biopsy is affected by factors such as men’s perceived threat of the disease, perceived benefits, external influences, and general health. A study of multi-ethnic men (n = 308) conducted in New York showed that ethnicity, level of income, and fear are key predictors of screening using PSA and digital rectal examination (DRE). The other factors include fear of invasion of privacy, embarrassment, fear of screening procedures and religiosity, lack of knowledge, lack of motivation or encouragement by others, lack of health-care provider involvement, and limited screening clinic hours.

A study conducted in Sweden showed that physicians’ opinions about the PSA test, request for screening, and physical symptoms affected the physician’s decision of ordering PSA testing. The studies cited above inform us that the barriers to PCa screening are still a common burden even in countries with high screening rates. There are no studies done in the Middle East region about men’s PCa screening intention and barriers that can be used to compare with. The aim of this study was to explore the barriers to PCa screening and the level of intention to screen in Omani men to delineate the needed interventions to enhance PCa screening and reduce PCa morbidity and mortality.

Current status of recommendations for prostate cancer screening

Currently, there is no universal consensus recommendation for population-wide PCa screening. However, some PCa cases are very aggressive, lead to mortality at a young age, and only have a good prognosis if diagnosed early. Therefore, it is important to encourage men of age 40 years and above to have discussions with their health-care providers to make informed decisions about initiating PCa screening. Screening for PCa means that a medical or diagnostic test is performed in the absence of any symptoms. The main goal of screening is to identify cancer at an early stage, to increase the chances of successful treatment, and to improve the patients’ quality of life.

The methods commonly used for PCa screening include the PSA and DRE. If an elevated PSA level (in general ≥3.0 ng/mL) and/or the DRE show abnormalities, a prostate biopsy is indicated. Rarely, transrectal ultrasound-guided biopsy is used for PCa screening. Reports from the USA and Europe show that PCa screening using PSA induced over-diagnosis, over-treatment, and this triggered the retraction of recommendations for a population-wide screening. Despite the retraction, available evidence strongly shows that screening reduces PCa-related mortality.
The European Association of Urology recommends that early detection of PCa should be offered to well-informed men starting with a baseline PSA at the age of 40 years.[21] Subsequent screening intervals of 8 years are then encouraged if the initial PSA level is <1 ng/mL and no further testing after the age of 75 years.[21]

The American Cancer Society (ACS) recommends that men should have a chance to make an informed decision with their health-care provider about whether to be screened for PCa.[22] The decision should be made after getting information about the uncertainties, risks, and potential benefits of PCa screening. The discussion should take place at age 50 for men who are at average risk and expected to live at least 10 or more years; at age 45 for men at high risk such as African-Americans, or who have a first-degree relative diagnosed with PCa at age younger than 65 years; at age 40 for men at even higher risk. Men with a PSA level <2.5 ng/mL only need to be tested every 2 years and those with higher levels should be tested every year.[22]

The American Urological Association (AUA) also strongly recommends shared decision-making for men aged 55–69 years that are considering PSA screening, and proceeding based on men’s values and preferences.[23] The AUA does not recommend routine screening in men under the age of 40 years and men above the age of 75 years or with a <10–15 years’ life expectancy. A screening interval of 2 years is preferred because it preserves the majority of the benefits and reduces over-diagnosis and false positives.[23]

Methods

A descriptive design was used to collect data from Community dwelling Omani men. The study focused on men of age 40 years and above. The ACS recommends initiation of discussions to assist high-risk men with decisions related to PCa screening starting at the age of 40 years. The participants were recruited in men’s barbershops located in two cities of Oman (Muscat and Sohar). A total of twenty barbershops were purposefully selected in each city and these constituted the study setting. The barbershops represent an accessible setting for most Omani men and are a good setting where customized information for men can be disseminated in a structured and culturally appropriate environment. Barbershops are commonly recommended as a culturally relevant, feasible, and appropriate venue for community-based PCa education.[24]

The participants were recruited based on the following inclusion criteria: nationality (Omani), age (40 years and above regardless of PCa history), and not being a health-care professional. The health-care professionals were excluded from the study because their professional knowledge about health issues and PCa could skew the results. A total of 400 men were approached to participate in the study and 129 (32.3%) agreed to consent to participate in the data collection interview. The reason given by those who refused to participate were lack of time and discomfort talking about diseases related to sexual organs. This study recruited a convenient sample of 129 Omani men.

Data collection instrument

Data were collected using a survey questionnaire (SQ). The SQ comprised a section to elicit data about men’s experiences with PCa (7 items) and these were used to determine the history of prostate disease, immediate family members with PCa, and past experience with DRE or PSA. Intention to screen for PCa was measured with the intention-to-screen scale. Intention to screen is a measure of a person’s readiness to be screened for PCa and is considered to be the immediate antecedent of behavior. Intention to screen is frequently used as a proximal measure of actual behavior when actual behavior is not readily apparent.[25] Intention to screen was measured with 5 items of “How likely is it that you will have a DRE or blood test to screen for PCa in the next 12 months?,” “How likely is it that you will take a DRE or blood test to screen for PCa when recommended by a doctor?,” and the three items with the following stem: “I expect to...,” “I want to...,” and “I intend to...”[25] The participants responded to each item on a 5-point Likert scale as 1 “Definitely will not” to 5 “Definitely will.” A total score was calculated by adding the level of intent (each item) for each procedure (DRE or blood test). The total scores ranged from 5 to 25 with higher scores indicating high intention for the respective procedure. The 5-item intention scale has a Cronbach’s alpha reliability of 0.94.[26]

The International Prostate Symptom Score (IPSS) was used to measure the presence of prostate symptoms. The IPSS measures the presence and severity of symptoms (7 items) related to prostate disease such as incomplete bladder emptying, urinary frequency, intermittency, urgency, weak stream, straining, and nocturia. The participants responded to each item on a 6-point Likert scale as “not at all = 0,” “<1 in 5 times = 1,” “less than half of the time = 2,” “about half the time = 3,” “more than half the time = 4,” and “almost always = 5.” A total score was computed by adding the level for each item. The total scores were categorized as mild (1–7), moderate (8–19), and severe (20–35). The IPSS has an extra item that measures the quality of life associated with the urinary symptoms on a scale of “0” to “6” (“delighted” to “terrible”). The IPSS has been widely used and has Cronbach’s alpha ranging from 0.71 to 0.80.[27]

The barriers to PCa screening were measured using 14 items which have been used by other studies.[13,15]
participants responded to each barrier statement on a 4-point Likert scale of “strongly disagree” to “strongly agree.” The other barriers to screening were measured using the Prostate Cancer Testing Behavior Questionnaire (PCTBQ) developed in 2012. The PCTBQ comprises subscales of perceived general health, perceived threat of PCa, and external influences of screening decision-making. The participants responded to each item on a 5-point Likert scale of “strongly disagree (1)” to “strongly agree (5).” The ratings of each item were added to get the total score for the domain. Higher scores on each scale indicate high levels of the respective factor. The scales of the PCTBQ all have a Cronbach’s alpha above 0.79.

All the components of the SQ were translated from English into Arabic by a professional translator. A second professional translator was used to translate the Arabic version back into English. Discrepancies between the back translation and original English version were identified and clarified. The items in the Arabic version were closely reviewed before generating the final SQ. The final Arabic SQ was pilot tested using a sample of ten Arabic-speaking men. The participants’ responses during the pilot test were reviewed to determine understanding, interpretation, and relevance of items.

Ethics

The study was reviewed and approved by the Research and Ethics Committee of the College of Nursing at the University of the investigators. The participants were required to complete a consent form written in Arabic. Participants were also provided with an opportunity to ask questions before data collection and were informed of their right to stop their participation at any time without any penalty.

Data collection procedure

Previsits were made to the study sites to identify and meet with the owners of barbershops to get permission for the study activities. The information gained during previsits was used to develop a schedule for data collection and to determine the availability of a private space for data collection. On data collection days, any Omani man who came to the barbershop and who met the inclusion criteria was approached to obtain permission to participate in the study. After providing consent, the participants were taken to a private space to complete the questionnaire.

Statistical analysis

The Statistical Package for Social Sciences version 17 (SPSS Inc. Released 2008. SPSS Statistics for Windows, Version 17.0. Chicago) software program was used for data management and analysis. The participants’ characteristics, prostate symptoms, intention to screen, and perceived barriers to PCa screening were summarized using descriptive statistics. Chi-square test, Pearson’s correlation, and multivariate regression analysis were used to establish determinants of intention to screen for PCa. The significance level for all statistical tests was set at $P \leq 0.05$ (two sided).

Results

Characteristics of the participants

The participants’ characteristics ($n = 129$) are summarized in Table 1. The mean age of participants was $55.6 \pm 11.8$ years. The majority were married (82.2%), educated at a diploma or higher levels (55%), and had regular access to a physician (66%). The majority of the participants reported having mild prostate symptoms (60.4%), high levels of general

| Characteristics | Category | Frequency (%) |
|-----------------|----------|---------------|
| Age in years (mean±SD: 55.60±11.76) | 40-50 | 100 (77.5) |
| | 51-60 | 18 (14.0) |
| | ≥61 | 11 (8.5) |
| Marital status | Never married | 13 (10.1) |
| | Married | 106 (82.2) |
| | Separated/widowed | 10 (7.8) |
| Highest level of education attained | Primary school or less | 20 (15.5) |
| | High school | 38 (29.5) |
| | Diploma | 27 (20.9) |
| | Bachelor’s degree and above | 44 (33.1) |
| Monthly income (US $) | <500 | 13 (10.1) |
| | 501-1500 | 41 (31.8) |
| | ≥1501 | 75 (58.1) |
| Employment status | Not employed or retired | 25 (19.4) |
| | Part time | 18 (14.0) |
| | Full time | 86 (66.7) |
| Access to regular physician | No | 44 (34.1) |
| | Yes | 85 (65.9) |
| Main source of health care | Government facility | 100 (77.5) |
| | Private facility | 29 (22.5) |
| Perceived general health on a scale of 1-10 (mean±SD: 8.35±2.08) | 1-5 | 11 (8.5) |
| | 6-10 | 118 (91.5) |
| Perceived threat of PCa on a scale of 1-10 (mean±SD: 8.35±2.08) | 1-5 | 38 (29.5) |
| | 6-10 | 91 (70.5) |
| External influences on a scale of 1-15 (mean±SD: 10.02±3.13) | 1-7 | 23 (17.8) |
| | 8-15 | 106 (82.2) |
| IPSS (mean±SD: 8.31±8.34) | Mild to moderate | 115 (89.1) |
| | Severe | 14 (10.9) |
| Quality of life associated with IPSS | Delighted | 34 (26.4) |
| | Pleased | 33 (25.6) |
| | Mostly satisfied | 2 (1.6) |
| | Mixed | 36 (27.9) |
| | Mostly dissatisfied or unhappy | 24 (18.7) |

SD: Standard deviation, PCa: Prostate cancer, IPSS: International prostate symptom score
health (91.5%), external influences (82.2%), and perceived threat of PCa (70.5%). A large number of men (46.6%) had mixed feelings and were dissatisfied or unhappy with the quality of life associated with their prostate symptoms.

**Participants’ experiences with prostate cancer and prostate cancer screening**

The majority of participants did not have any prior personal experiences with PCa [Table 2]. The results summarized in Table 2 show that only a few participants had ever been diagnosed with PCa (4.7%), informed by a doctor that they had any disease of the prostate (8.5%), and had ever a DRE (10%) or PSA (11.6%) in the past 12 months.

**Perceived barriers to prostate cancer screening**

Table 3 shows the perceived barriers to PCa screening. The top five most common barriers to PCa screening were belief that DRE will be harmful (45.7%), fear of finding out something wrong as a result of PCa screening (48.1%), not knowing what will be done during PCa screening (54.3%), belief that PCa is not a serious disease (55.8%), and belief that DRE is embarrassing (56.6%).

**Intention to screen for prostate cancer**

Table 4 indicates that, despite the number of participants with moderate-to-severe prostate symptoms, the majority had low-to-moderate intention to screen using DRE (76%) and PSA (69.8%). The average level of intention to screen using both DRE and PSA was 15.4 and 16.4, respectively, and these are within the moderate range. Bivariate correlation analysis showed that intention to screen for PCa using DRE was significantly associated with being informed by a doctor that one has any disease of the prostate gland \(r = 0.258; P = 0.003\), working hours \(r = -0.176; P = 0.046\), belief that DRE is embarrassing \(r = -0.187; P = 0.034\), convenience of clinic or health center hours \(r = -0.197; P = 0.025\), not knowing where to go for screening \(r = -0.239; P = 0.006\), perceived general health \(r = 0.245; P = 0.005\), perceived threat of PCa \(r = 0.397; P = 0.000\), and level of external influences \(r = 0.278; P = 0.001\). Intention to screen for PCa using PSA was significantly associated with being informed by a doctor that one has any disease of the prostate gland \(r = 0.235; P = 0.007\), perceived general health \(r = 0.282; P = 0.001\), perceived threat of PCa \(r = 0.385; P = 0.000\), and external influences \(r = 0.331; P = 0.000\).

**Participants’ characteristics associated with intention to screen for prostate cancer**

Table 5 shows that the participants’ characteristics that were significantly associated with intention to screen using DRE were prior receipt of a DRE \(P = 0.006\), having had a DRE in the past 12 months \(P = 0.000\), prior receipt of a PSA test \(P = 0.000\), having had a PSA in the past 12 months \(P = 0.005\), and a past medical history of PCa \(P = 0.000\). The characteristics which were significantly associated with intention to screen using PSA were prior receipt of a DRE \(P = 0.033\) and past medical history of PCa \(P = 0.004\).
Determinants of intention to screen for prostate cancer

Multivariate regression analysis results [Table 6] show that the significant determinants of intention to screen for PCa by DRE are perceived threat of the disease (β = 0.27, \( P = 0.006 \)) and having been informed by a doctor that one has any disease of the prostate (β = 0.20, \( P = 0.017 \)). The model of prediction of intention to screen using DRE explained 26% of the variance. The significant determinants of intention to screen PCa by PSA were perceived threat of the disease (β = 0.22, \( P = 0.025 \)), having been informed by a doctor that one has any disease of the prostate (β = 0.20, \( P = 0.017 \)), and perceived general health (β = 0.16, \( P = 0.047 \)). The model of prediction of intention to screen using PSA explained 26.9% of the variance.

Discussion

There is no study which has specifically explored PCa screening behaviors in Omani men. To our knowledge, this is the first study to report about men's behaviors related to PCa screening in Oman. The findings show that the majority of men did not have personal experiences with PCa, but had mild (60.5%), moderate (28.7%), or severe (10.9%) prostate symptoms that deserved reporting to a health-care provider for potential screening and health care. A large number of men (46.6%) were dissatisfied or unhappy with

### Table 4: Participants' intention to screen for prostate cancer (n=129)

| Variable                          | Category                  | Frequency (%) | Mean±SD   |
|-----------------------------------|---------------------------|---------------|-----------|
| Intention to screen               | Low-to-moderate intention | 98 (76.0)     | 15.36±5.50 |
| using DRE                         | High intention            | 31 (24.0)     |           |
| Intention to screen               | Low-to-moderate intention | 90 (69.8)     | 16.44±5.12 |
| using PSA                         | High intention            | 39 (30.2)     |           |

PSA: Prostate-specific antigen, DRE: Digital rectal examination, SD: Standard deviation

### Table 5: Distribution of intention to screen and selected participants' characteristics

| Characteristics                        | Response | Intention to screen with DRE (n=129) | Intention to screen with PSA (n=129) |
|----------------------------------------|----------|--------------------------------------|--------------------------------------|
|                                        |          | Low to moderate | High | \( \chi^2 \) and \( P \) | Low to moderate | High | \( \chi^2 \) and \( P \) |
| International Prostate Symptom Score   | Mild     | 59 | 19 | \( \chi^2=1.58 \) | 54 | 24 | \( \chi^2=0.03 \) |
|                                        | Moderate | 30 | 7 | \( P=0.454 \) | 26 | 11 | \( P=0.983 \) |
|                                        | Severe   | 9  | 5  |                             | 10 | 4  |                             |
| Had a DRE for a PCa                   | No       | 94 | 25 | \( \chi^2=7.68 \) | 86 | 33 | \( \chi^2=4.55 \) |
|                                        | Yes      | 4  | 6  | \( P=0.006 \) | 4  | 6  | \( P=0.033 \) |
| Had a DRE for PCa in the past 12 months| No       | 94 | 22 | \( \chi^2=16.18 \) | 83 | 33 | \( \chi^2=1.74 \) |
|                                        | Yes      | 4  | 9  | \( P=0.000 \) | 7  | 6  | \( P=0.187 \) |
| Had ever had a PSA for PCa            | No       | 92 | 21 | \( \chi^2=14.81 \) | 82 | 31 | \( \chi^2=3.38 \) |
|                                        | Yes      | 6  | 10 | \( P=0.000 \) | 8  | 8  | \( P=0.066 \) |
| Had a PSA for PCa in the past 12 months| No       | 91 | 23 | \( \chi^2=7.98 \) | 82 | 32 | \( \chi^2=2.17 \) |
|                                        | Yes      | 7  | 8  | \( P=0.005 \) | 8  | 7  | \( P=0.140 \) |
| Past medical history of PCa           | No       | 97 | 26 | \( \chi^2=12.12 \) | 89 | 34 | \( \chi^2=8.41 \) |
|                                        | Yes      | 1  | 5  | \( P=0.000 \) | 1  | 5  | \( P=0.004 \) |

FET: Fisher’s exact test, PSA: Prostate-specific antigen test, DRE: Digital rectal examination, PCa: Prostate cancer

### Table 6: Determinants of intention to screen for prostate cancer

| Screening procedure | Unstandardized coefficients | \( \beta \) | \( t \) | \( P \) | 95% CI |
|---------------------|-----------------------------|------------|--------|--------|-------|
| DRE                 |                             | B         | SE     |        |       |
| Constant            | 17.67                       | 8.55      | 2.07   | 0.041  | 0.75-34.59 |
| Been informed by a doctor that he has any disease of the prostate gland | 3.97 | 1.64 | 0.20 | 2.42 | 0.017 | 0.72-7.22 |
| Perceived threat of PCa | 0.68 | 0.24 | 0.27 | 2.81 | 0.006 | 0.20-1.16 |
| Perceived general health | 0.35 | 0.22 | 0.13 | 1.60 | 0.113 | -0.08-0.79 |
| Do not know where to go for screening | -0.74 | 0.99 | -0.07 | -0.75 | 0.457 | -2.70-1.22 |
| Digital rectal examination is embarrassing | -0.87 | 0.96 | -0.08 | -0.91 | 0.365 | -2.76-1.02 |
| PSA                 |                             |           |        |       |       |
| Constant            | 1.452                       | 8.080     | 0.18   | 0.858  | -14.55-17.45 |
| Been informed by a doctor that he has any disease of the prostate gland | 3.714 | 1.530 | 0.20 | 2.43 | 0.017 | 0.69-6.74 |
| Perceived threat of PCa | 0.513 | 0.226 | 0.22 | 2.27 | 0.025 | 0.07-0.96 |
| Perceived general health | 0.405 | 0.211 | 0.16 | 1.92 | 0.047 | -0.01-0.82 |
| Do not know where to go for screening | 0.251 | 0.927 | 0.02 | 0.27 | 0.787 | -1.58-2.09 |

PSA: Prostate-specific antigen test, DRE: Digital rectal examination, CI: Confidence interval, SE: Standard error, PCa: Prostate cancer
the quality of life associated with the reported symptoms, and this highlights a gap in their health. It is possible that men did not know that the prostate symptoms could be potential indicators of underlying prostate disease. These findings are consistent with the findings of a recent study conducted in Oman which showed that the majority of the population has limited cancer awareness. Therefore, our study supports the call for more strategies to educate the public about cancer risk, manifestations, and screening.

The findings of this study show that the main barriers to PCa screening were those related to health-care facility, knowledge about PCa, and personal beliefs. The most highly rated barriers were clinic or health center hours not being convenient, belief that DRE will be harmful, fear of finding out something wrong after PCA screening, not knowing what will be done during PCA screening, belief that PCa is not a serious disease, and belief that DRE is embarrassing. Closely similar barriers have been reported by studies conducted in the USA and Europe. The good news is that there are interventions which can be used to reduce some of these barriers to PCA screening. An intervention study which was conducted in Turkey showed that web-based education and reminders can effectively and significantly reduce barrier perception, increase susceptibility perception, and screening using PSA.

The intention to screen for PCa was generally low and this could be attributed to the various barriers discussed above or lack of knowledge about PCa. The majority of men had low to moderate intention to screen using DRE and PSA. These findings are not surprising because available literature about cancer screening in the Middle East shows that misconceptions about cancer are high, and screening programs have low uptake because of social and health beliefs. The findings indicating a diminutive intention to undergo PCa screening are important because they may be a glimpse into the story behind the increasing PCa late diagnosis, morbidity and mortality among Omani men.

The determinants of intention to screen for PCa established by this study such as perceived threat of the disease, perceived general health, and having been informed by a doctor about disease of the prostate gland show that, when health-care providers provide eligible men with information about their health, prostate disease, and risk factors for PCa, their intention to undergo PCA screening increases. The results about determinants of intention to screen are similar to those of other studies. For instance, it has been reported by earlier studies that 47% of the variance in men's intention to screen for PCa depends on a doctor's recommendation of the screening and men's positive attitude toward screening. The intention to screen for PCa also increases with prior experience and good knowledge about the disease. It seems that some of the interventions that are needed to address the upsurge in PCa morbidity and mortality are those focusing on men's knowledge and attitudes toward PCa screening. Such effort can help to enhance intention, actual uptake of PCa screening, and subsequent early diagnosis and treatment.

Conclusion

This study has showed diminutive intention to undergo PCa screening by the participants. This inclination may be due to the various personal beliefs, experiences, and health-care system factors which act as barriers to PCa screening. The findings provide a good baseline that can be used by future studies to test interventions to enhance PCa awareness. Interventions aimed at enhancing PCa disease and risk awareness may help reduce the perceived barriers, increased screening uptake, and subsequent early diagnosis and treatment.

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Conflicts of interest

There are no conflicts of interest.

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