Epidemiology and Health System Journal
doi:10.34172/ehsj.26578 2025 Autumn;12(4):207-216 http://ehsj.skums.ac.ir

Original Article

Men's Knowledge, Beliefs, and Behaviors on Prostate Cancer Screening in Sfax: A Cross-Sectional Study

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Abstract

Background and aims: Prostate cancer (PCa) is the second most common malignancy among Tunisian men, although screening uptake remains low due to limited awareness and cultural barriers. Thus, this study aimed to assess the levels of knowledge, attitudes, cultural beliefs, views, and screening behaviors related to PCa among men aged 40 and above in the Sfax region of Tunisia and to identify factors influencing these dimensions.

Methods: A descriptive and analytical cross-sectional study was conducted in 2025 among 1,520 men using a structured questionnaire covering sociodemographic and clinical factors, knowledge of PCa, attitudes, cultural beliefs, views, and screening practices. The obtained data were entered, verified, and analyzed using SPSS 25. Ultimately, univariate tests and multivariate logistic regression were used for statistical analysis.

Results: Based on the results, participants demonstrated low knowledge (n=922; 60.7%), negative attitudes (n=1304, 85.8%), and moderate cultural beliefs (n=869, 57.2%). Only 7.4% had ever undergone PCa screening (n=113), and 68.7% expressed a willingness to perform screening in the future (n=966). Moreover, screening uptake was significantly associated with high knowledge (OR=4.399, $P<0.001$), positive attitudes (OR=4.579, $P<0.001$), and weak cultural beliefs (OR=0.251, $P<0.001$). Finally, barriers included lack of symptoms (55.2%), financial constraints (47.3%), and low perceived risk (46.3%).

Conclusion: Overall, PCa screening remains low in the Sfax region, driven by limited knowledge, negative attitudes, and influential cultural beliefs. In general, higher knowledge and positive attitudes increased screening uptake, while strong cultural beliefs reduced it. Accordingly, improving awareness and addressing cultural and financial barriers are essential to enhance early detection.

Keywords: Prostate cancer screening, Knowledge, Attitudes, Beliefs, Views, Behaviors

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Received: August 19, 2025
Revised: December 13, 2025
Accepted: December 14, 2025
ePublished: December 30, 2025

Introduction

Prostate cancer (PCa) consists of malignant cells that usually develop in the outer part of the prostate gland. PCa often has no noticeable symptoms in its early stages. However, if left untreated, it can spread to nearby lymph nodes, bones, and other organs.[1]

In Tunisia, PCa is considered a serious public health concern. According to statistics from the World Health Organization, PCa is the second most common cancer among Tunisian men, accounting for 10.9% of all male cancers. Despite its high prevalence, national screening rates for PCa in Tunisia remain low, mainly due to a lack of awareness and cultural stigma.[2] Accordingly, this study focuses on the Sfax region, which was selected because it is the second-largest city of Tunisia and a representative urban center with documented healthcare access challenges, including limited cancer screening infrastructure and critical cultural barriers to preventive care. It is noteworthy that examining this region provides valuable insights into the broader screening challenges faced across urban Tunisia.[3]

Family history, race, and hereditary syndromes are well-established risk factors for PCa. Although modifiable risk factors may influence the risk of developing the disease and the risk of dying from it, there is limited evidence supporting effective prevention strategies beyond the critical role of early diagnosis in reducing PCa-related mortality.[2]

Additionally, a lack of awareness remains a vital issue. For instance, a study conducted in Southwest Tanzania reported that less than half of respondents (43.9%) had ever heard of PCa screening, underscoring the role of limited knowledge in hindering early detection efforts.[3]

Many men frequently feel at low risk due to the absence

of symptoms, which reduces their sense of urgency regarding screening. This lack of awareness is further compounded by uncertainty about the availability of screening programs.[3]

To understand factors influencing screening behavior, this study aims to examine several key dimensions, such as "knowledge," "attitudes," "beliefs," and "views." Knowledge refers to factual awareness about PCa and screening methods,[4] and attitudes encompass personal evaluations and feelings toward screening. Moreover, beliefs represent more profound convictions about health, disease causation, and treatment outcomes that may or may not be evidence-based,[5] and views capture broader perspectives and opinions shaped by personal and social contexts. Notably, cultural beliefs, which are rooted in shared traditions, religious interpretations, and community norms, differ from individual attitudes in that they are collectively held and often influence behavior through social pressure or accepted practices rather than personal preference alone.[6]

To understand how these elements shape screening behavior, this study is guided by a framework integrating four interrelated psychosocial determinants: knowledge, attitudes, cultural beliefs, and behavioral intentions. In this framework, knowledge shapes attitudes, and attitudes influence intentions. In addition, cultural beliefs can either facilitate or hinder each stage by exerting social pressure or reinforcing stigma.

In conclusion, PCa remains a serious public health challenge, especially in regions like Tunisia, where low awareness, cultural stigmas, and financial barriers hinder screening rates.[5] This study, therefore, seeks to provide evidence underscoring the crucial role of knowledge, attitudes, beliefs, views, and behaviors in shaping men's willingness to engage in PCa screening.

The objective of this study is to evaluate men's knowledge, attitudes, cultural beliefs, and behaviors regarding PCa screening in the Sfax region and identify factors influencing these dimensions.

Materials and Methods

Study Design

A descriptive and analytical cross-sectional study was conducted over one month in the governorate of Sfax, Tunisia, in 2025.

Participants

This study employed convenience sampling, recruiting participants from various healthcare facilities and community settings within the Sfax governorate based on their availability and willingness to participate.

More precisely, the participants included men aged 40 years or older residing in the governorate of Sfax who were able to communicate and understand the survey questions and voluntarily consented to participate. However, men were excluded if they refused to participate, had communication difficulties or a language barrier that prevented proper understanding of the questionnaire, or had been previously diagnosed with PCa. The exclusion criteria also applied to incomplete questionnaires or responses deemed invalid due to missing key information, as well as to participants under 40 years of age or living outside the Sfax governorate.

Measurement and Variables

A previously designed, structured, and anonymous questionnaire was used for this study. It should be noted that the questionnaire was adapted and validated for the Tunisian context through a two-stage process. First, a panel of three experts in public health and urology reviewed the questionnaire for content validity and cultural appropriateness. Then, a pilot study was conducted with 30 men meeting the inclusion criteria to assess comprehension, clarity, and feasibility. Based on pilot feedback, minor linguistic adjustments were made to ensure cultural relevance and ease of understanding. The final questionnaire demonstrated acceptable internal consistency, with Cronbach's alpha coefficients of 0.81 for the knowledge, attitude, belief, and view sections. Each questionnaire required approximately 15–20 minutes to complete.

The cut-off points for categorizing knowledge, attitude, belief, and view scores into "low," "medium," and "high" levels were determined based on categorization methods established in previous studies examining PCa knowledge and screening behaviors.

General Characteristics

The first part of the questionnaire included sociodemographic characteristics, such as age, marital status, level of education, occupation, place of residence, number of children under care, socioeconomic status, and medical insurance coverage. Moreover, it included clinical characteristics, specifically the participants' personal somatic medical history and any family history of cancer.

Knowledge

The 10 items used to quantify knowledge were adapted from information gathered by the American Cancer Society in 2015 and the Centers for Disease Control and Prevention in 2016. Response categories were "True", "False", or "Do not Know". In addition, responses of do not know and blank were coded as incorrect responses.[7] Based on the number of correct responses, knowledge levels were categorized as low (0–4), medium (5–7), and high (8–10).[7]

Attitudes

Ten questions assessed participants' prevailing cultural attitudes toward PCa and its screening. [8] Each item was rated on a 5-point Likert-type scale reflecting the level of agreement with specific statements, where 1 and 5 indicated "Strongly Disagree" and "Strongly Agree,"

respectively. The total attitude score was dichotomized: scores > 40 represented a positive attitude, while scores ≤ 40 denoted a negative attitude.[8]

Beliefs

The prevailing cultural beliefs among study participants were evaluated using eight statements that addressed common misconceptions about PCa.[7]

Responses were recorded using a 5-point Likert-type scale, where 1 and 5 demonstrated "Strongly Disagree" and "Strongly Agree," respectively. Total scores ranged from 7 to 40 and were classified as weak (7–15), moderate (16–23), or strong (24–40) cultural beliefs.[7]

Views

The view variables were measured on a 4-point Likert-type scale, with responses such as "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree," coded so that a low value on the views domain represented little or no perceived susceptibility, seriousness of the disease, or benefits of screening, respectively.[9]

Participants' views on susceptibility and impact of PCa were combined into a composite score out of 30, categorized as low (0–10), medium (11–20), or high (21–30), indicating perceived vulnerability and seriousness.[9]

Behaviors

The sixth section aimed to determine whether participants had consulted a healthcare provider about PCa or undergone any form of screening. It also identified the reasons influencing participants' decisions. Participants were asked whether they had ever discussed PCa with a physician and how often they consulted with a physician. Furthermore, they were asked if they had undergone screening, where it took place, and what methods were used in this respect. For those who had not been screened, the questionnaire explored potential barriers to screening. Additionally, participants were asked about their willingness to undergo screening in the future and the motivations behind it.

Sample Size Calculation

The minimum required sample size was calculated based on a literature-reported prevalence estimate of 60.3% for attitudes (Saudi Arabia, 2024). [8]

In addition, a 2.5% margin of error was incorporated, and a 10% loss rate or incomplete responses was anticipated. Thus, the minimum required sample size for our study was 1,500 participants.

Statistical Methods

The obtained data were entered, verified, and analyzed using the Statistical Package for the Social Sciences (SPSS), version 25. Qualitative variables were presented as frequencies (N) and percentages (%). The normality of quantitative variables was assessed primarily using the Shapiro-Wilk normality test. In addition, quantitative variables were described using means ± standard deviations (SD) for normally distributed data, and medians with interquartile ranges (IQR) for non-normally distributed data.

For univariate analyses, comparisons of proportions were conducted using the Chi-square test, or Fisher's exact test when the assumptions for Chi-square were not met. Furthermore, crude odds ratios (ORs), along with their 95% confidence intervals (95% CI) and corresponding *P*-values, were derived from univariate logistic regression models to assess the strength of association between each independent variable and screening behavior.

Variables with a *P* value < 0.20 in the univariate analysis were subsequently entered into a multivariate logistic regression model to identify independent predictors of PCa screening while controlling for potential confounding factors such as age and education level. Finally, adjusted ORs (aORs) with their 95% CI were calculated to estimate the independent effect of each predictor on screening behavior.

Results

Descriptive Study

A total of 2,156 surveys were distributed to men aged 40 or older. Overall, 1,520 men were included in the study, representing a response rate of approximately 70.5% (Figure 1).

Sociodemographic Characteristics

The median age of our study population was 50 years, with an interquartile range of 44–61 years. Among the 1,520 participants, 12.2% were single men (n = 185), and 33.7% had a primary education level (n = 512). Regarding professional status, 24.2% (n = 368) were retired, and 5.4% (n = 82) were unemployed. The majority of participants (66.8%, n = 1016) resided in urban areas, and 61.9% (n = 941) reported a medium socioeconomic income. Most respondents (81.2%, n = 1234) had medical insurance coverage, with public insurance as the most common type (67.1%, n = 825). In terms of health background, 17.1%

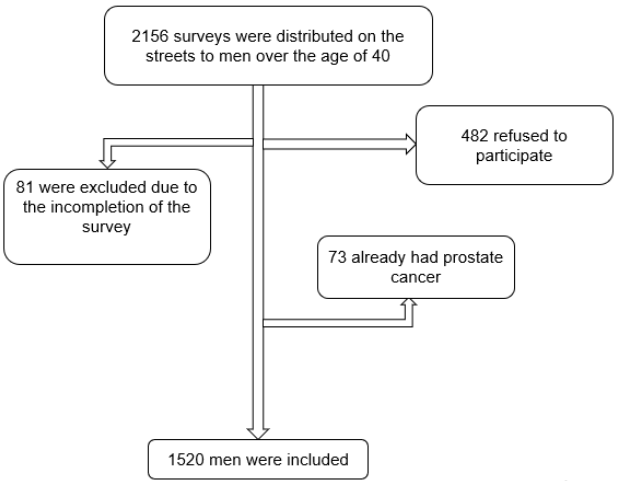

Figure 1. Flowchart of the Studied Population

(n = 260) reported a somatic medical history, and 13.3% declared a family history of cancer (Table 1).

Knowledge of Prostate Cancer Screening

The median knowledge score regarding PCa screening among participants was 5 (IQR = [3–6]), with scores ranging from 0 to 9. Nonetheless, a significant portion of the population (60.7%; n = 922) demonstrated low knowledge, highlighting a general lack of awareness of PCa screening (Table 2). When asked about specific statements, 67.8% (n = 1031) correctly affirmed that early detection could lead to a cure for PCa. However, awareness of the available screening methods remained low, with only 13.4% (n = 203) reporting knowledge of prostate-specific antigen (PSA) testing and just 21.1% (n = 320) being familiar with the digital rectal exam.

Attitudes Toward Prostate Cancer Screening

The median attitudes score concerning PCa screening was 29 (IQR = [25–33]), with scores ranging from a minimum of 15 to a maximum of 45. Among whom, 85.8% demonstrated a negative attitude toward PCa screening (n = 1304, Table 2). In our study, 67.8% strongly agreed that early detection protects from serious effects.

Beliefs on Prostate Cancer Screening

The median beliefs score regarding PCa screening was 18 (IQR = [15–22]), with scores ranging from 10 to 33. Among all participants, 57.2% (n = 869) had moderate beliefs (Table 2). In our study, 76.2% (n = 1158) of participants strongly agreed with the statement "I always put my trust in God/Allah."

Views on Prostate Cancer Screening

The median views score for PCa screening was 16 (IQR = [14–17]), with scores ranging from 4 to 24. Among all participants, 75.5% (n = 1147) represented a medium level (Table 2). In general, 55.3% (n = 840) of participants strongly disagreed with the statement "All men are at risk of having PCa."

Behaviors

Only 6.6% of participants (n = 101) had consulted a physician about PCa, among whom 42.6% (n = 43) reported a single consultation. Of the 113 participants who had been screened for PCa, 58.4% (n = 66) did so with a private doctor, and 74.3% (n = 84) underwent a PSA blood test. Among those unwilling to undergo PSA screening, the belief of not being at risk was the most frequently cited reason (82.8%, n = 367). Conversely, among those willing to undergo PSA screening, the primary reason was to know their health status (76.2%, n = 735). Overall, 68.7% (n = 966) of participants expressed willingness to undergo screening. Regarding reasons for not undergoing PCa screening, the absence of symptoms was the most frequently reported (55.2%, n = 777). The related data are provided in Table 3.

Table 1. General Characteristics of the Study Population

Variables	Frequency (n)	Percentages (%)
Age		
40-49	733	48.2
50-59	344	22.6
60-69	249	16.4
≥70	194	12.8
Marital status		
Married	1,138	74.9
Single	185	12.2
Divorced	103	6.8
Widowed	94	6.2
Level of education		
Illiterate	169	11.1
Primary	512	33.7
Secondary	377	30.4
University	462	24.8
Occupation		
Has a job	1,070	70.4
Retired	368	24.2
Unemployed	82	5.4
Residence		
Urban	1,016	66.8
Rural	504	33.2
Socioeconomic income		
Low	513	33.8
Medium	941	61.9
High	66	4.3
Medical insurance		
Yes	1,234	81,2
No	286	18.8
Types of insurance		
Public insurance	825	67.1
Private insurance	191	15.5
Reduced-rate	175	14.2
Indigent coverage	38	3.1
Personal somatic medical history		
Yes	260	17.1
No	1,260	82.9
Family history of cancer		
Yes	202	13.3
No	1,318	86.7
Family history of prostate cancer		
Yes	44	2,9
No	1,476	97.1

Analytical Study

Factors Associated With a Low Level of Knowledge

Several factors were significantly associated with a reduced likelihood of having low knowledge about PCa screening. They included having a university education, a

Table 2. Knowledge, Attitude, Belief, and View Levels of the Study Population

Variables		Frequency (N)	Percentage (%)
Knowledge	Low	922	60.7
	Medium	549	36.1
	High	49	3.2
Attitudes	Negative	1,304	85.8
	Positive	216	14.2
Beliefs	Weak	388	25.5
	Moderate	869	57.2
	Strong	263	17.3
Views	Low	249	16.4
	Medium	1,147	75.5
	High	124	8.2

medium or high socioeconomic income, being employed, being in the 40–49 age group, having medical insurance coverage, being single or married, and being the primary caregiver for children. Conversely, factors associated with an increased likelihood of low knowledge included illiteracy, widowhood, low socioeconomic income, age of 60 years or older, lack of employment, residency in rural areas, retirement, divorce, and a personal somatic medical history (Table 4).

Factors Related to Negative Attitudes

Participants with university education, single marital status, a family history of PCa, medium socioeconomic income, and aged 40–49 years, as well as unemployed/employed participants and those holding medical insurance or having secondary education, were considerably less likely to express negative attitudes toward PCa screening. In contrast, negative attitudes were more commonly observed among those with a personal somatic medical history, divorced individuals, retirees, participants with low socioeconomic income, those aged above 59, individuals with only primary education or no education at all, and widowed participants (Table 4).

Factors Associated With Strong Cultural Beliefs

Participants who were single or married, aged between 40 and 49 years, had children under their care, possessed medical insurance, were employed, had a medium socioeconomic income, or had attained university or secondary level education were noticeably less likely to hold strong cultural beliefs toward PCa screening. Contrarily, stronger cultural beliefs were more frequently observed among participants living in urban areas, those with only primary education, individuals with a personal somatic medical history, divorced persons, those with low socioeconomic income, participants aged above 59, unemployed individuals, illiterate participants, and widowed individuals (Table 4).

Factors Related to Low Views

Several factors were significantly related to lower odds of holding low views on PCa screening, including having medical insurance, being married, being in the age range of 40–49 years, having a university education, having children under their care, being employed, having a medium income, and having a primary education. Conversely, higher odds of holding low views were observed among individuals who were divorced, had low socioeconomic income, were aged 70 or above, and were illiterate, unemployed, or widowed (Table 4).

Table 3. Descriptive Analysis of Participants' Behaviors

	Frequency (N)	Percentage (%)
Consulting a doctor about prostate cancer		6.6
1 time	43	42.6
2 times	24	23.8
3 times	7	6.9
4 times	8	7.9
≥5 tiles	19	18.8
Prostate cancer screening		
No	1,407	92.6
Yes	113	7.4
Place		
Private doctor	66	58.4
Clinic	51	45.1
Hospital	26	23
Methods		
Prostate-specific antigen (PSA)	84	74.3
Digital rectal exam	34	30.1
Ultrasound	44	38.9
Reasons for not undergoing prostate cancer screening among participants		
No symptoms, so I see no reason	777	55.2
Financial constraints	666	47.3
I don't feel at risk	651	46.3
I don't feel sick	626	44.5
Lack of interest	352	25
Never advised by the physician	235	16.7
It's a rare disease in our area/country	213	15.1
Willingness to undergo prostate cancer screening		
Yes	966	68.7
No	441	31.3
Reasons for willingness to undergo PSA screening		
To know my status	735	76.2
To detect cancer before symptoms occur	411	42.6
If I am sick	386	40
If I know PSA screening	277	28.7
Reasons for unwillingness to undergo PSA screening		
I don't feel at risk	367	82.8
I don't feel sick	345	77.9
Lack of interest	261	58.9
Lack of time	230	51.9
It's a rare disease	153	34.5

Note. N: Frequency; %: Percentage; PSA: Prostate-specific antigen.

Table 4. Associated Factors to Knowledge, Attitudes, Cultural Beliefs, and Views of the Study Population

Associated Factors	Low Knowledge N (%)	OR [95% CI]	*P* Value	Negative Attitudes N (%)	OR [95% CI]	*P* Value	Strong Cultural Beliefs N (%)	OR [95% CI]	*P* Value	Low views N (%)	OR [95% CI]	*P* value
Age												
40-49	375 (51.2)	0.460 [0.373-0.567]	<0.001 *	591 (80.6)	0.432 [0.330-0.584]	<0.001 *	81 (11.1)	0.413 [0.311-0.549]	<0.001 *	86 (11.7)	0.509 [0.383-0.676]	<0.001 *
50-59	210 (61)	1.021 [0.798-1.306]	0.867 *	293 (85.2)	0.938 [0.667-1.317]	0.710 *	62 (18)	1.066 [0.779-1.460]	0.688 *	61 (17.7)	1.133 [0.825-1.556]	0.441 *
60-69	176 (70.7)	1.697 [1.263-2.278]	<0.001 *	231 (92.8)	2.368 [1.432-3.916]	0.001 *	59 (23.7)	1.624 [1.170-2.255]	0.004 *	51 (20.5)	1.396 [0.990-1.967]	0.056 *
≥70	161 (83)	3.622 [2.452-5.350]	<0.001 *	189 (97.4)	7.153 [2.908-17.597]	<0.001 *	61 (31.4)	2.552 [1.820-3.579]	<0.001 *	51 (26.3)	2.032 [1.427-2.893]	<0.001 *
Marital status												
Single	93 (50.3)	0.617 [0.453-0.840]	0.002 *	135 (73)	0.383 [0.267-0.551]	<0.001 *	14 (7.6)	0.357 [0.204-0.626]	<0.001 *	23 (12.4)	0.697 [0.440-1.103]	0.121 *
Married	670 (58.9)	0.739 [0.580-0.941]	0.014 *	978 (85.9)	1.050 [0.756-1.459]	0.771 *	155 (13.6)	0.400 [0.302-0.529]	<0.001 *	154 (13.5)	0.473 [0.355-0.630]	<0.001 *
Divorced	74 (71.8)	1.712 [1.100-2.665]	0.016 *	98 (95.1)	3.429 [1.380-8.523]	0.005 *	26 (25.2)	1.681 [1.055-2.679]	0.027 *	25 (24.3)	1.707 [1.064-2.738]	0.025 *
Widow	85 (90.4)	6.646 [3.317-13.318]	<0.001 *	93 (98.9)	16.511 [2.289-119.085]	<0.001 *	68 (72.3)	16.510 [10.252-26.589]	<0.001 *	47 (50)	6.059 [3.938-9.323]	<0.001 *
Education level												
Illiterate	153 (90.5)	7.237 [4.276-12.248]	<0.001 *	167 (98.8)	15.716 [3.869-63.846]	<0.001 *	87 (51.5)	7.083 [5.038-9.959]	<0.001 *	78 (46.2)	5.915 [4.200-8.329]	<0.001 *
Primary	384 (75)	2.621 [2.071-3.316]	<0.001 *	496 (96.9)	7.673 [4.556-12.924]	<0.001 *	117 (22.9)	1.749 [1.334-2.293]	<0.001 *	68 (13.3)	0.700 [0.518-0.946]	0.020 *
Secondary	223 (59.2)	0.920 [0.725-1.166]	0.490 *	310 (82.2)	0.694 [0.506-0.951]	0.022 *	22 (5.8)	0.232 [0.147-0.365]	<0.001 *	52 (13.8)	0.768 [0.552-1.069]	0.117 *
University	162 (35.1)	0.212 [0.168-0.267]	<0.001 *	331 (71.6)	0.221 [0.164-0.298]	<0.001 *	37 (8)	0.320 [0.222-0.462]	<0.001 *	51 (11)	0.539 [0.388-0.749]	<0.001 *
Professional status												
Unemployed	66 (80.5)	2.805 [1.608-4.891]	<0.001 *	61 (74.4)	0.456 [0.271-0.765]	0.002 *	43 (52.4)	6.104 [3.867-9.636]	<0.001 *	43 (52.4)	6.594 [4.172-10.423]	<0.001 *
Has a job	588 (55)	0.424 [0.332-0.540]	<0.001 *	896 (83.7)	0.530 [0.371-0.757]	<0.001 *	149 (13.9)	0.477 [0.363-0.627]	<0.001 *	149 (13.9)	0.566 [0.427-0.750]	<0.001 *
Retired	268 (72.8)	2.041 [1.577-2.640]	<0.001 *	347 (94.3)	3.367 [2.112-5.369]	<0.001 *	71 (19.3)	1.195 [0.884-1.616]	0.246 *	57 (15.5)	0.916 [0.664-1.265]	0.595 *
Residence												
Urban	556 (54.7)	2.194 [1.741-2.766]	<0.001 *	862 (84.8)	1.274 [0.928-1.774]	0.133 *	153 (15.1)	1.575 [1.199-2.068]	0.001 *	169 (16.6)	0.946 [0.707-1.264]	0.706 *
Rural	366 (72.6)			442 (87.7)			110 (21.8)			80 (15.9)		
Children cared for												
Yes	594 (58.9)	0.799 [0.641-0.995]	0.045 *	874 (86.6)	1.220 [0.905-1.644]	0.192 *	131 (13)	0.428 [0.327-0.561]	<0.001 *	137 (13.6)	0.560 [0.425-0.738]	<0.001 *
No	328 (64.2)			430 (84.1)			132 (25.8)			112 (21.9)		
Socioeconomic level												
Low	417 (81.3)	4.318 [3.350-5.566]	<0.001 *	480 (93.6)	3.230 [2.193-4.759]	<0.001 *	120 (23.4)	1.845 [1.408-2.418]	<0.001 *	113 (22)	1.809 [1.373-2.385]	<0.001 *
Medium	478 (50.8)	0.314 [0.249-0.396]	<0.001 *	771 (81.9)	0.391 [0.278-0.552]	<0.001 *	132 (14)	0.558 [0.427-0.729]	<0.001 *	129 (13.7)	0.608 [0.462-0.799]	<0.001 *
High	27 (40.9)	0.432 [0.262-0.714]	0.001 *	53 (80.3)	0.662 [0.354-1.235]	0.192 *	11 (16.7)	0.954 [0.492-1.848]	0.889 *	7 (10.6)	0.594 [0.268-1.317]	0.195 *

Table 4. Continued.

Associated Factors	Low Knowledge N (%)	OR [95% CI]	*P* Value	Negative Attitudes N (%)	OR [95% CI]	*P* Value	Strong Cultural Beliefs N (%)	OR [95% CI]	*P* Value	Low views N (%)	OR [95% CI]	*P* value
Medical insurance												
Yes	718 (58.2)	0.559 [0.423-0.740]	<0.001 *	1045 (84.7)	0.576 [0.377-0.882]	<0.010 *	182 (14.7)	0.438 [0.324-0.592]	<0.001 *	167 (13.5)	0.389 [0.287-0.528]	<0.001 *
No	204 (71.3)			259 (90.6)			81 (28.3)			82 (28.7)		
Personal somatic medical history												
Yes	175 (67.3)	1.414 [1.066-1.875]	0.016 *	175 (67.3)	1.414 [1.066-1.875]	0.016 *	64 (24.6)	1.741 [1.264-2.398]	0.001 *	44 (16.9)	1.048 [0.734-1.498]	0.796 *
No	747 (59.3)			747 (59.3)			199 (15.8)			205 (16.3)		
Family history of cancer												
Yes	110 (54.5)	0.745 [0.553-1.004]	0.053 *	232 (89.2)	1.453 [0.953-2.215]	0.081 *	37 (18.3)	1.084 [0.738-1.591]	0.682 *	38 (18.8)	1.216 [0.829-1.782]	0.316 *
No	812 (61.6)			1072 (85.1)			226 (17.1)			211 (16)		
Family history of prostate cancer												
Yes	19 (55.9)	0.818 [0.412-1.622]	0.564 *	24 (70.6)	0.386 [0.182-0.820]	0.021 **	10 (29.4)	2.031 [0.959-4.299]	0.059 *	4 (11.8)	0.675 [0.236-1.934]	0.462 *
No	903 (60.8)			1280 (86.1)			253 (17)			245 (16.5)		

Note. OR: Odds ratio; CI: Confidence interval; $P \leq 0.05$: Level of significance; *: Pearson's Chi-square test; **: Fischer's exact test.

Factors Associated With Prostate Cancer Screening Uptake

The analysis revealed that participants with low knowledge and strong cultural beliefs were considerably less likely to have ever undergone PCa screening. However, screening uptake was significantly higher among those with positive attitudes, high knowledge, medium knowledge, and weak cultural beliefs (Table 5).

In the multivariable logistic regression model, after adjustment for potential confounders (e.g., age and education), only knowledge and attitudes remained noticeably associated with PCa screening behavior.

Men with medium (aOR = 0.357, 95% CI: 0.167–0.762, $P = 0.008$) and high (aOR = 0.147, 95% CI: 0.64–0.341, $P < 0.001$) knowledge levels were remarkably more likely to have been screened compared to those with low knowledge. Similarly, participants with positive attitudes toward PCa screening were significantly more likely to undergo screening (aOR = 0.355, 95% CI: 0.225–0.562, $P < 0.001$).

In contrast, beliefs and views about PCa did not retain statistical significance in the adjusted model, suggesting that differences in knowledge and attitudes largely explain their influence on screening behavior.

Discussion

Knowledge

In our 2025 survey in Tunisia, the majority of participants (60.7%) showed limited knowledge of PCa, with only 3.2% demonstrating a high level. These findings align with those of studies from Zambia[10] and South Africa,[11] where low knowledge rates were 63.8% and 64.1%, respectively. Contrarily, better awareness levels were reported in Cameroon,[7] Saudi Arabia,[8] and Nigeria,[12] where higher proportions of participants had good knowledge. Compared with these studies, our results indicated a generally low-to-moderate level of awareness, markedly lower than that observed in Jamaica.

Several sociodemographic and clinical factors were significantly associated with poor knowledge. Moreover, advanced age, unemployment, retirement, rural residence, and low income emerged as main predictors, echoing inequalities in access to health information and preventive services. A lack of medical insurance further limited awareness, while a personal medical history modestly improved it.[8]

In the Tunisian context, these results revealed persistent gaps in health communication, especially in rural and interior regions, where health promotion programs remain scarce, and men's health topics remain socially sensitive. The absence of organized national screening campaigns, coupled with a predominantly curative health system, contributes to these knowledge deficits. Likewise, a limited understanding of PCa risk reduces perceived vulnerability and discourages screening. Accordingly, strengthening community-based education through primary healthcare centers and media campaigns can improve awareness, particularly among older and rural populations.[3]

Attitudes

In our study, 85.8% of participants expressed negative attitudes toward PCa screening, with only 14.2% showing a favorable disposition, indicating an apparent reluctance or low adherence to this preventive measure. This negative perception is notably higher than in other studies. For instance, Elyas et al in Saudi Arabia reported only 39.7% negative attitudes,[8] while Gift et al in Zambia found that an overwhelming 98.5% of participants had positive attitudes.[10] Similarly, high positivity was observed in Cameroon (74%), South Africa (84.8%), and Nigeria (60.8%).[7,11,13]

Table 5. Associated Factors of Prostate Cancer Screening Uptake

	Ever Screened for Prostate Cancer		Bivariate Analysis		Multivariate Analysis	
	Yes, n (%)	No, n (%)	OR [95% CI]	*P* Value	aOR [95% CI]	*P* Value
Knowledge						
Low	34 (3.7)	888 (96.3)	0.252 [0.166-0.381]	<0.001 *	0.147 [0.64-0.341]	<0.001
Medium	67 (12.2)	482 (87.8)	2.795 [1.890-4.133]	<0.001 *	0.357 [0.167-0.762]	0.008
High	12 (24.5)	37 (75.5)	4.399 [2.225-8.699]	<0.001**	--	--
Attitudes						
Positive attitudes	44 (20.4)	172 (79.6)	4.579 [3.037-6.902]	<0.001*	--	--
Negative attitudes	69 (5.3)	1235 (94.7)			0.355 [0.225-0.562]	<0.001
Beliefs						
Strong cultural beliefs	6 (2.3)	257 (97.7)	0.251 [0.109-0.577]	<0.001 *	--	--
Moderate cultural beliefs	63 (7.2)	806 (92.8)	0.940 [0.639-1.382]	0.751 *	--	--
Weak cultural beliefs	44 (11.3)	344 (88.7)	1.971 [1.325-2.931]	0.001 *	--	--
Views						
Low	18 (7.2)	231 (92.8)	0.965 [0.572-1.628]	0.893 *	--	--
Medium	85 (7.4)	1062 (92.6)	0.986 [0.633-1.537]	0.951 *	--	--
High	10 (8.1)	114 (91.9)	1.101 [0.560-2.167]	0.780 *	--	--

Note. OR: Odds ratio; CI: Confidence interval; aOR: Adjusted odds ratio; $P \leq 0.05$: Level of significance; *: Pearson's Chi-square test; **: Fisher's exact test.

Compared to these findings, our results reflect a significantly less favorable outlook, particularly when contrasted with attitudes reported in sub-Saharan Africa.

Older age, widowhood, and low income were major predictors of negative attitudes, while family history and medical insurance were protective. These findings underscore the importance of social support and socioeconomic stability in shaping preventive behaviors.[8]

Within Tunisia, cultural perceptions of masculinity and fatalism toward illness play a central role in shaping attitudes. Many men still associate cancer screening with weakness or embarrassment, while financial barriers and mistrust of preventive care further reinforce negative predispositions. These attitudes are closely tied to cultural beliefs, as traditional views about health, religion, and fate frequently discourage proactive medical behavior. Awareness programs should, therefore, address cultural fears and misconceptions by using trusted figures, such as religious leaders, community representatives, and healthcare professionals, to promote screening as a responsible and self-care act rather than a fear-driven one.[8]

Beliefs

In our 2025 survey in Tunisia, the majority of participants (57.2%) expressed moderate convictions about PCa screening, with 25.5% displaying weak convictions while 17.3% showing strong ones, which sharply contrasts with the findings of the study by Kaninjing et al in Cameroon [7], where weak convictions dominated (67.8%), while strong convictions were nearly absent (0.2%). These disparities may be attributed to cultural and contextual differences, as well as variations in health education efforts and public trust in health information. Unlike the Cameroonian context, our data suggest a more balanced outlook, with a combined 74.5% of participants holding moderate to strong convictions, demonstrating greater openness toward screening.[7]

In Tunisia, religious and cultural narratives remain highly influential, particularly in rural areas, where traditional healers and collective decision-making shape health behavior. Even in urban settings, modesty and social stigma around reproductive health discourage open discussion. Such beliefs interact with attitudes and views, as men with stronger traditional beliefs tend to show more negative attitudes and weaker intentions to screen. Accordingly, public health interventions should incorporate culturally sensitive and faith-based communication, emphasizing that disease prevention aligns with values of family protection and self-responsibility.[7]

Views

In our survey, the majority of participants expressed average views on PCa screening, while only 8.2% held strong views and 16.4% weak ones. These results reflect a generally moderate, yet relatively low, conviction level compared to the findings of other African studies. For instance, Adamu et al in Nigeria reported a higher proportion (37.6%) with strong views,[14] and Farazi et al found 24.6% with high views,[12] both figures considerably exceeding ours. These differences may stem from variations in educational levels or more effective awareness programs in those regions. Overall, our findings point to a moderate, but limited, level of strong views, shaped by contextual, educational, and population-specific factors.

In Tunisia, men's health literacy remains limited, and preventive screening is rarely discussed in consultations. The healthcare system still emphasizes treatment over prevention, and many men lack a consistent source of

medical advice. Views, therefore, serve as the cognitive bridge between beliefs and behaviors; views toward screening tend to remain passive when beliefs are rooted in tradition and attitudes are negative. Integrating patient education into routine medical visits and using mass communication tools (e.g., radio, television, and social media) can help normalize PCa screening and encourage behavioral change.[12]

Behaviors

In our study, only 7.4% of participants reported having undergone PCa screening, while 92.6% had never been screened, a relatively low uptake compared to the results of other African studies. For instance, Oladimeji et al in Nigeria [1] reported an even lower rate (4.5%), while Nartey Laweh and Manortey in Ghana[15] and Gift et al in Zambia[10] observed higher rates of 17% and 13%, respectively. The highest screening rate was noted in Jamaica by Anderson et al at 34.8%, suggesting greater implementation of screening programs there.[16]

In our study, PCa screening behavior was significantly associated with knowledge, attitudes, and cultural beliefs. Participants with high knowledge levels were more than four times as likely to report prior screening as those with poor knowledge, which is in line with the findings of Oladimeji et al and Anderson et al, reporting higher screening rates among participants with greater knowledge.[1,16] Attitudes also played a significant role. More precisely, participants with positive attitudes were remarkably more likely to undergo screening, which conforms to the result of the study by Kaninjing et al.[7] These results demonstrate that attitude-based interventions could effectively enhance screening uptake. In contrast, strong cultural beliefs were a serious barrier in our population, highlighting a deterrent role of traditional or religious perspectives.[10]

In the Tunisian context, PCa prevention requires a multidimensional strategy that addresses not only the lack of information but also cultural resistance, social isolation, and systemic barriers. Efforts should aim to educate through sustained community programs, empower men to engage in preventive care without stigma, engage trusted local and religious figures to challenge misconceptions, and enable access to screening by improving affordability and insurance coverage. Ultimately, transforming beliefs and attitudes into action will require a cultural shift, one that reframes screening as a responsible and courageous step toward protecting one's health and family.[15]

Strengths and Limitations

This study had several strengths that enhance its scientific and practical value. It followed rigorous methodological standards, ensuring credibility from problem formulation to data analysis. As one of the first regional studies on men's perceptions and practices regarding PCa in Sfax, it fills a crucial gap in Tunisian research and lays the groundwork for future investigations. Moreover, its multidimensional approach, covering knowledge, cultural beliefs, and behaviors, offers a comprehensive understanding. The findings provide valuable insights for designing targeted awareness programs and guiding healthcare professionals, benefiting public health efforts nationally and regionally.

However, the study's main limitation was the lack of national data on men's attitudes and practices toward PCa screening, restricting broader contextual comparison. Additionally, the cross-sectional design limited the ability to establish causal relationships between knowledge, attitudes, and screening behaviors. In addition, the use of a convenience sampling method may have introduced selection bias, potentially affecting the representativeness of the findings. Acknowledging these limitations strengthens the study's academic rigor and provides clear directions for future research, including longitudinal and nationally representative studies.

Conclusion

PCa remains a serious public health issue, especially in regions like Tunisia, where awareness and engagement in screening practices are limited. Considering that the disease often progresses silently, early detection is critical for improving survival rates. However, cultural beliefs, social barriers, and limited access to information continue to hinder proactive screening behaviors.

This study highlights the persistently low uptake of PCa screening among men in the Sfax region, shaped by a combination of limited knowledge, negative attitudes, and deeply rooted cultural beliefs. Knowledge and attitudes emerged as strong facilitators of screening behavior, whereas cultural beliefs acted as critical barriers. These findings underscore the need for targeted interventions that address misconceptions, enhance awareness, and reduce financial and informational obstacles. Generally, culturally adapted educational programs, improved access to screening services, and community-based outreach may strengthen early detection efforts and contribute to reducing the burden of PCa in Tunisia.

Acknowledgments

The authors would like to express their sincere gratitude to all the men who generously participated in this study and shared their time and perspectives. Similarly, we extend our heartfelt thanks to the research team members and co-authors for their dedication and valuable contributions throughout all phases of the study.

In addition, we are especially grateful to Professor Bassem Abid, Head of the Higher Institute of Nursing Sciences of Sfax, for his continuous support and provision of the necessary institutional framework to conduct this research. His encouragement and guidance greatly contributed to the success of this work.

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Conflict of Interests

The authors declare they have no conflict of interests related to this study.

Ethical Approval

This study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Higher Institute of Nursing Sciences (approval No. 54/2025). Participants were informed about the confidentiality of the study, the anonymity of their responses, and their right to withdraw at any time without any consequences. Moreover, written informed consent was obtained from all participants prior to enrollment.

Funding

This research received no specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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