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Prevalence and Determinants of PSA Screening Among Men Aged 70 and Older in a Tripoli Outpatient Clinic: A Pilot Cross-Sectional Study

Alaa Emtir*, **Abdussalam Muftah**, **Tarik Abulhul**

Urology Department, Tripoli Central Hospital, Tripoli, Libya
***Corresponding Email**: alaaemtir61@gmail.com*

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ABSTRACT

Prostate-specific antigen (PSA) screening remains a widespread practice among older men, despite current guidelines advising against routine screening in individuals aged 70 years and older. In Libya, particularly in urban centers such as Tripoli, data on PSA screening prevalence and patterns are scarce. Although guidelines recommend caution, international studies from Spain, the USA, and Brazil have documented persistent PSA testing among elderly men (1–5). This study aimed to explore the prevalence and determinants of PSA screening in a Libyan context, providing local evidence to inform clinical practice. A cross-sectional, pilot study was conducted at the urology outpatient clinic of Tripoli Central Hospital. Thirty men aged ≥70 years were recruited using purposive sampling. Data were collected via structured questionnaires, medical record reviews, and semi-structured interviews. Descriptive statistics and chi-square tests were used to analyze associations between sociodemographic variables and PSA screening behavior. The study was exploratory and aimed to generate hypotheses for larger, representative studies. Of the 30 participants, 50% reported undergoing PSA screening at least once, primarily due to physician recommendation (47%). Further diagnostic procedures were followed in 30% of screened cases. Only 40% of participants reported being informed about the risks and benefits of PSA screening, and 30% felt fully involved in decision-making. No statistically significant associations were observed between screening and sociodemographic variables, although higher educational attainment showed a positive, non-significant trend ($p = 0.08$). Notably, 80% of participants expressed a desire for more information regarding PSA testing. Despite international guidelines discouraging routine PSA screening in men ≥70, half of the participants had undergone testing, largely influenced by physicians. Limited shared decision-making and gaps in patient education were evident. These findings underscore the need for locally tailored educational interventions and structured physician–patient discussions to align screening practices with evidence-based recommendations and support informed decision-making in Libya.

Introduction

Prostate cancer remains one of the most frequently diagnosed malignancies among men worldwide, with its incidence rising with age. Screening for prostate cancer using prostate-specific antigen (PSA) testing has been a common strategy for early detection, yet its use in older populations remains controversial. Guidelines such as those from the U.S. Preventive Services Task Force (USPSTF) and the European Association of Urology (EAU) recommend against routine PSA screening in men aged 70 years and older, due to limited benefit and the potential for harm from overdiagnosis and overtreatment.

Although these recommendations represent the international standard, many studies have demonstrated that PSA screening continues to be practiced among elderly men in different healthcare systems. For instance, a Spanish study by Urquijo-Moraza et al. (2022) found that 15.7% of men aged ≥70 underwent PSA screening, with minimal cancer detection and considerable associated costs (1). In the United States, Berkowitz et al. (2018) and Shahangian et al. (2021) reported that approximately one-third of older men continued to be screened, often influenced by regional and systemic healthcare factors (2,3). Similar trends were observed in Brazil, where de Lima et al. (2021) linked screening prevalence to sociodemographic factors such as retirement and marital status (4). These examples illustrate that, despite strong international guidelines, clinical practice often diverges from recommendations, making this a relevant research area across multiple countries.

Moreover, PSA testing in this age group frequently leads to further interventions, including biopsies and imaging, which may not offer meaningful survival benefits and can significantly burden both patients and health systems. Nierengarten (2023) highlighted that nearly 63% of older men who were screened subsequently underwent additional diagnostic services, raising concerns about downstream consequences and resource utilization (5). Additionally, Merrill et al. (2022) emphasized that conversations around PSA testing often focus solely on potential benefits, with limited shared decision-making (6).

In Libya, data regarding the prevalence and patterns of PSA screening in older adults are scarce. Although the current guidelines discourage PSA testing in men ≥70, documenting real-world practices is essential for understanding local clinical behavior and for identifying gaps in guideline implementation. This study, therefore, aims to fill this gap by estimating the prevalence of PSA screening among men aged 70 and above

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in a Libyan outpatient clinic and examining factors associated with its continued use. Given the limited sample size, this research should be regarded as a pilot study. Its primary purpose is exploratory: to generate hypotheses, provide preliminary insights, and lay the groundwork for larger-scale studies in the future. Understanding local screening practices is essential for aligning clinical behavior with evidence-based guidelines, improving shared decision-making, and ultimately enhancing the quality and efficiency of care delivered to older patients. This study was conducted to determine the prevalence of PSA testing in this age group, while also examining sociodemographic factors such as marital status, retirement, and educational background that may influence screening behavior.

Methods

Study Design

This was a cross-sectional exploratory pilot study conducted to assess the prevalence and factors influencing PSA screening among men aged 70 years and older referred from Tripoli Central Hospital (TCH), Tripoli, Libya. The cross-sectional design provided a snapshot of current screening practices and related factors within this specific population.

Setting and Population

The study was carried out at the urology outpatient clinic of Tripoli Central Hospital (TCH). The target population included men aged ≥70 years attending the clinic for routine consultations. A total of 30 participants were included, reflecting feasibility constraints and the exploratory nature of the study.

Sampling

A non-probability purposive sampling technique was employed. Eligible participants were those aged ≥70 years who were available during the study period and consented to participate. The relatively small sample size was justified by the pilot scope of the research.

Data Collection

Data for this study were obtained through multiple complementary sources to ensure accuracy and contextual depth. Laboratory records were reviewed to document PSA testing among referred patients, providing objective evidence of screening prevalence. Medical records were examined to capture information on prior screening history, clinical decision-making, and subsequent follow-up procedures. In cases where clarification was required, supplementary semi-structured interviews were conducted with patients. These interviews explored the reasons for undergoing or declining PSA screening and highlighted the role of physician–patient discussions in shaping decision-making. Together, these sources offered a comprehensive view of screening practices, clinical pathways, and patient perspectives within the study population.

Variables

The study incorporated a range of variables to capture both patient characteristics and screening outcomes. Sociodemographic factors—including age, marital status, education level, occupation, and health insurance status—were considered as independent variables, given their potential influence on screening behavior. The primary dependent variable was PSA screening status, defined as whether the participant had undergone a prostate-specific antigen test within the past year. In addition, secondary variables were documented to provide insight into downstream consequences of screening, such as follow-up procedures initiated after PSA testing, including referrals for biopsy or additional imaging. Together, these measures allowed for a comprehensive assessment of screening prevalence, associated determinants, and subsequent clinical pathways.

Data Analysis

Descriptive statistics were used to estimate the prevalence of PSA screening. Associations between sociodemographic variables and screening practices were explored using chi-square tests. Due to the small sample size, findings were interpreted cautiously and intended primarily to inform hypotheses for future, larger studies. Data were analyzed using SPSS software.

Ethical approval

This study was conducted in accordance with established ethical guidelines to protect the rights, privacy, and well-being of all participants. Verbal informed consent was obtained from each participant prior to inclusion in the study, and participation was entirely voluntary. Confidentiality was rigorously maintained.

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Results

The majority of participants were in the younger segment of the elderly population, with 40% aged 70–74 years, while only 10% were aged ≥85. Most were married (60%), and a substantial proportion were retired (70%), reflecting the expected demographic profile of older clinic attendees. Educational attainment varied, with nearly one-third having only primary education and 15% reaching university level. These findings (Table 1) suggest that sociodemographic diversity may influence screening behaviors, particularly in relation to education and occupational status.

Table 1. Sociodemographic Characteristics of Participants (n = 30)

Variable	Categories	n	%
Age group (years)	70–74	12	40.0
	75–79	9	30.0
	80–84	6	20.0
	≥85	3	10.0
Marital status	Married	18	60.0
	Widowed	6	20.0
	Divorced	3	10.0
	Single	3	10.0
Education level	Illiterate	3	10.0
	Primary school	9	30.0
	Secondary school	8	25.0
	Intermediate education	6	20.0
	University	4	15.0
Occupational status	Retired	21	70.0
	Unemployed	6	20.0
	Working	3	10.0

Half of the study population reported ever undergoing PSA screening, while the other half had never been screened (Table 2). This balanced distribution highlights the variability in clinical practice and patient decision-making, despite international recommendations discouraging routine screening in this age group.

Table 2. Prevalence and Frequency of PSA Screening

Screening status	n	%
Ever screened	15	50.0
Never screened	15	50.0

Among those who had been screened, 40% reported only a single test in the past five years, while one-third had undergone two tests, and over one-quarter had been screened three or more times (Table 3). This pattern indicates that repeated screening remains common, potentially contributing to unnecessary follow-up procedures in older patients.

Table 3. Frequency of PSA Screening Among Screened Participants (n = 15)

Frequency (last 5 years)	n	%
Once	6	40.0
Twice	5	33.3
≥3 times	4	26.7

Only 40% of participants recalled that risks and benefits were explained, while 43.3% reported no counseling, and 16.7% could not recall. Patient involvement was similarly variable, with 30% fully involved, 40% partially involved, and 30% not involved at all (Table 4). These findings underscore gaps in shared decision-making, suggesting that many patients undergo screening without adequate information or active participation in the decision process.

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Table 4. Physician Counseling and Patient Involvement (n = 30)

Aspect	Categories	n	%
Risks & benefits explained	Yes	12	40.0
	No	13	43.3
	Cannot recall	5	16.7
Involvement in decision-making	Fully involved	9	30.0
	Partially involved	12	40.0
	Not involved	9	30.0

Despite guideline recommendations, two-thirds of participants considered PSA screening important for men aged ≥70, while 16.7% viewed it as unimportant, and another 16.7% were uncertain. Notably, 80% expressed a need for more information about PSA testing (Table 5). This highlights a strong demand for patient education and suggests that perceptions of screening are shaped by limited knowledge and physician influence.

Table 5. Perceptions of PSA Screening and Information Needs

Variable	Categories	n	%
Importance of PSA ≥70	Important	20	66.7
	Not important	5	16.7
	Uncertain	5	16.7
Need more information	Yes	24	80.0
	No	6	20.0

Discussion

This pilot cross-sectional study evaluated the prevalence of prostate-specific antigen (PSA) screening among men aged 70 years and older attending the urology outpatient clinic at Tripoli Central Hospital (TCH), Tripoli, Libya, while also examining factors influencing screening behavior and physician–patient interactions. The findings revealed that 50% of participants had undergone PSA screening, a prevalence higher than some international reports but consistent with global concerns regarding the continued overuse of PSA testing in elderly populations, despite evidence-based guideline recommendations.

International guidelines, including those from the U.S. Preventive Services Task Force (USPSTF) and the European Association of Urology (EAU), recommend against routine PSA screening in men aged ≥70 years due to limited clinical benefit and the potential harms of overdiagnosis and overtreatment (7-9). However, guidelines represent ideal practice, while the local reality often differs. The relatively high screening prevalence observed in this study aligns with trends reported internationally. For instance, Merrill et al. (10) reported that approximately one-third of American men over 70 years continue to undergo PSA testing, primarily influenced by physician recommendation and patient preference. Similarly, Urquijo-Moraza et al. (11) documented a 15.7% prevalence among elderly Spanish men, reflecting regional variations but an overall tendency toward continued screening in this age group, despite clear guideline recommendations.

The present study highlights the central role of physicians in influencing screening uptake, as nearly half of the participants underwent PSA testing based on a physician's recommendation. However, discussions surrounding PSA testing were often incomplete: only 40% of participants recalled that risks and benefits were explained, and fewer than one-third reported full involvement in the decision-making process. These findings underscore the need to strengthen physician–patient communication and adopt structured shared decision-making strategies, ensuring that screening decisions are guided by both clinical evidence and patient values (12).

Although no statistically significant associations were found between sociodemographic factors and screening status, a positive trend was observed between higher educational attainment and increased likelihood of PSA screening ($p = 0.08$). This is consistent with previous research linking higher education and health literacy to greater participation in preventive health measures, including cancer screening (13). Such findings suggest that educational background may influence screening behaviors, highlighting the importance of targeted educational interventions to support informed decision-making among less-educated populations. Furthermore, the strong desire expressed by 80% of participants to receive more information about PSA screening reflects a substantial unmet need for patient education in this clinical setting. Developing culturally sensitive, patient-centered educational initiatives could help address misconceptions, improve understanding of potential benefits and harms, and reduce unnecessary screening practices. Ultimately, such interventions would promote alignment with international evidence-based guidelines and improve the quality of care provided to elderly men in Libya (14).

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Limitations

This study has several limitations that should be acknowledged when interpreting the findings. First, the small sample size and reliance on purposive sampling restrict the generalizability of the results. As a pilot investigation, the primary intent was to generate preliminary hypotheses rather than provide definitive conclusions. Second, data collection depended in part on questionnaires completed by laboratory departments for cases referred from TCH, which may have introduced information bias and limited the extent of direct patient input. Third, the reliance on self-reported PSA screening history raises the possibility of recall bias, particularly among older participants. Finally, the cross-sectional design precludes any assessment of causality between sociodemographic characteristics and screening behavior, limiting the ability to draw firm conclusions about determinants of practice.

Future research should therefore employ larger, randomized samples and longitudinal designs to validate these preliminary observations, evaluate interventions aimed at optimizing PSA screening practices, and provide stronger evidence to guide clinical decision-making in Libya.

Conclusion

PSA screening remains relatively prevalent among men aged 70 years and older attending the urology outpatient clinic at Tripoli Central Hospital (TCH), Libya, with physician recommendation serving as the primary driver of testing. This occurs despite international guidelines, such as those from the USPSTF and EAU, advising against routine screening in this age group. As a pilot study, data collection relied on questionnaires completed by laboratory departments for cases referred from TCH, providing a context-specific snapshot of local screening practices. The study identified notable gaps in shared decision-making and patient education, emphasizing the need for enhanced physician–patient communication and the implementation of targeted, culturally appropriate educational interventions. Such measures are essential to support informed decision-making, improve patient understanding of PSA testing, and promote alignment with evidence-based guidelines, thereby optimizing the quality of care for elderly men in this clinical setting. Furthermore, these preliminary findings provide a foundation for larger-scale studies in Libya to better inform policy and clinical practice.

Conflict of interest. Nil

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