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Comparative assessment of attitudes and expectations: Iranian patients versus urologists in the management of benign prostatic hyperplasia

Jalil Hosseini¹, Amir Alinejad Khorram^{2*} , Amir Reza Abedi¹, Mohammad Ali Hosseini³ and Mohammad Fayaz⁴

Abstract

Background Benign prostatic hyperplasia (BPH) is common and presents as lower urinary tract symptoms (LUTS). Understanding patient concerns and treatment preferences is essential for effective management. This study aimed to investigate the attitudes, preferences, and expectations of Iranian patients with BPH, and compare them with those of urologists in addressing this condition.

Methods A cohort of patients diagnosed with BPH underwent assessment during their initial visit. Before any counseling, their attitudes, concerns, and expectations regarding benign prostate enlargement were evaluated using semi-structured interviews. Patient responses were analyzed based on educational levels and age. Additionally, correspondence was initiated with thirty urologists who graduated within the past twelve years to assess their attitudes toward BPH, concerns, and treatment approaches. Interview questions were constructed using the Delphi method, and their validity was confirmed. Responses from both groups were analyzed and compared. Descriptive statistics, independent t-test, Chi-squared test, Mann-Whitney U, and principal component analysis (PCA) with varimax rotation were used for statistical analysis.

Results The study comprised 261 patients and 30 urologists. Findings revealed that 86.2% of patients and 86.7% of urologists perceived a lack of sufficient patient knowledge about BPH. Patients across all educational levels and age groups expressed a desire for more information about their condition. Primary concerns among patients included exacerbation of urinary symptoms, potential malignancy, and sexual dysfunction. While patients generally preferred pharmacological treatments, those older than 75 years showed a significantly higher preference for surgical options. Conversely, urologists exhibited greater concern for long-term clinical complications associated with BPH. Results indicated significant parallels between the attitudes of urologists and patients in assessing the multifaceted impact of BPH on patient well-being.

Conclusion This study enhances our understanding of patient attitudes and concerns regarding BPH, thereby facilitating more effective treatment strategies. Our findings encourage urologists to enhance patient perspectives

*Correspondence:

Amir Alinejad Khorram
Amir.alinejad1992@gmail.com

Full list of author information is available at the end of the article



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by delivering comprehensive information. Furthermore, the comparison between patient and urologist attitudes towards BPH underscores the importance of tailored care and patient-centered approaches in optimizing outcomes for individuals with BPH.

Keywords Benign prostatic hyperplasia, Attitude, Knowledge, Iran

Introduction

Benign prostatic hyperplasia (BPH) is characterized by the non-malignant enlargement of the prostate gland, primarily resulting from unregulated hyperplastic growth in the periurethral and transition zones of the prostate [1]. Histopathological investigations have demonstrated that approximately 50% of men in their sixth decade exhibit pathological features consistent with BPH [2]. This benign prostatic enlargement frequently manifests as lower urinary tract symptoms (LUTS), significantly impacting the affected individuals' quality of life. Symptoms commonly associated with BPH include nocturia, reduced urinary flow, increased urinary frequency, post-void dribbling, urgency, and incomplete voiding. Importantly, the prevalence of BPH-related urinary symptoms tends to escalate with advancing age [3–5]. Studies have indicated that LUTS attributed to BPH affect roughly 50% of men aged 60 and older, and approximately 80% of men aged 80 and older [6–8].

The severity of symptoms and their perceived impact on patients' well-being are pivotal considerations in treatment decisions, often assessed using tools such as the International Prostate Symptom Score (IPSS) and Quality of Life (QoL) score [8]. Based on the severity of LUTS, patient preference, and physician opinion, treatment modalities for BPH encompass a spectrum ranging from lifestyle modifications [9] and pharmacological interventions [10] to surgical procedures [11], comprising approximately 13 distinct methods [12]. Physician selection of treatment modality for individual patients is multifaceted and contingent upon various factors, including anticipated outcomes.

To optimize treatment outcomes and align with patient expectations, a comprehensive understanding of treatment advantages and disadvantages is essential, along with an awareness of patients' primary concerns. The utilization of pharmacological interventions for mitigating severe symptoms remains restricted, with medications predominantly prescribed for managing mild to moderate LUTS [13]. Surgical modalities are generally regarded as more appropriate for addressing severe urinary symptoms and enhancing the quality of life among patients diagnosed with BPH [14, 15]. However, patient reluctance towards surgery due to potential perioperative and postoperative complications requiring additional interventions is not uncommon [16, 17]. Patient preference significantly influences treatment selection [12, 18], with patient knowledge about the disease, attitudes

towards BPH, disease progression, and treatment options all influencing decision-making and treatment expectations. Prior research has delineated differences in attitudes towards BPH and its treatment between patients and urologists [19, 20].

This study aims to assess the level of knowledge, expectations, and treatment preferences among Iranian patients diagnosed with BPH. Furthermore, it seeks to compare the attitudes of Iranian patients with BPH to those of urologists, with a focus on evaluating urologists' concerns and expectations regarding BPH management and their treatment approaches. By elucidating patients' attitudes and expectations, this study endeavors to inform more effective treatment strategies for BPH.

Materials and methods

Study design

This multicenter cross-sectional study was conducted at the urology clinics of Shohada-e-Tajrish, Labafinejad, and Shahid-Modares Hospitals. The study enrolled patients presenting with lower urinary tract symptoms (LUTS) during their initial visit between March 2021 and April 2023, as well as urologists who graduated from Shahid Beheshti University of Medical Sciences between 2010 and 2022.

Participant selection

Patient selection: Patients with a history of pelvic or prostate surgery, urethral stricture, pelvic malignancies, or neurological disorders affecting urinary symptoms were excluded. All participating patients underwent transrectal ultrasound examinations to estimate prostate size. Suspected cases of neurogenic bladder (as the underlying cause of urinary symptoms) were subjected to urodynamic studies, and those with confirmed diagnoses of neurogenic bladder were also excluded. During the screening period, a total of 324 patients were evaluated, and after excluding unsuitable cases, 261 patients were ultimately included in the study. Written informed consent was obtained from all participants.

Urologist selection: Urologists who graduated from Shahid Beheshti University of Medical Sciences between 2010 and 2022 were contacted to participate in the study. Only urologists with more than one year of medical experience were included. Specialists who did not engage in consulting and treating benign prostatic hyperplasia (BPH) patients or who had no face-to-face contact with them (due to research, training, or specialized activities

in other fields of urology) were excluded. Ultimately, 30 urologists were included in the study, comprising 24 general urologists, 3 reconstructive urologists, 2 endourologists, and 1 urologic oncologist.

Data collection

Patients interviews: At baseline, patients completed the Persian version of the IPSS questionnaire to assess the severity of their symptoms. The Persian version of IPSS questionnaire has been widely used in previous studies and has been shown to be a reliable and valid measure of BPH symptoms [21].

Additionally, participants underwent semi-structured interviews before treatment and counseling to explore their understanding of BPH, treatment expectations, concerns, and attitudes toward the disease and its management. The interviews were conducted by a trained researcher and lasted approximately 30 min. The contents of these interviews are available in supplementary file No. 1.

The educational level of the patients was classified using the International Standard Classification of Education (ISCED), categorizing them into five groups: “No formal education,” “Primary education (e.g., elementary school),” “Secondary education (e.g., high school diploma or equivalent),” “Post-secondary non-tertiary education (e.g., vocational training),” and “University education (Bachelor’s degree, Master’s degree, Doctorate, or equivalent).” Additionally, participants were grouped by age as follows: ≤ 55 years, 56–65 years, 66–75 years, and >75 years. The responses of the patients were analyzed and compared based on their age and education level.

Urologist interviews: Urologists were interviewed to evaluate their attitudes toward BPH, concerns, and treatment approaches. The purpose of these interviews was to gain insight into the current practices and perspectives of urologists in Iran regarding BPH diagnosis and management. The contents of these interviews are available in supplementary file No. 2.

Assessment tools

Patient and urologist interviews were conducted based on predetermined themes developed through the Delphi method. This approach provided the necessary flexibility to uncover new insights while ensuring that standard questions were addressed. To structure the questions effectively, multiple rounds of discussion were held with a panel of experts and researchers from the fields of urology and psychology.

To evaluate the content validity of the questionnaires developed through the Delphi method, the Content Validity Index (CVI) and Content Validity Ratio (CVR) were utilized. The final questionnaire was reviewed by eight urologist researchers with over 20 years of

experience, who assessed the necessity and appropriateness of the questions for this study. The results obtained, with a CVR greater than 0.75 and a CVI greater than 0.79, confirm the content validity of the questionnaires.

Data analysis

Responses from patients and urologists were analyzed and compared. Descriptive statistics, including mean \pm standard deviation (SD), frequency, and confidence intervals (CI), were calculated. The t-test and Mann-Whitney U test were used for independent continuous sample comparisons, while the Chi-squared test was employed for categorical data analysis. Also, Chi-squared test and Crosstabs were used to compare the results based on different ages and educational levels. In the conducted analyses, the threshold for statistical significance was set at $\alpha=0.05$. Principal Component Analysis (PCA) with varimax rotation, explaining 85% of the variance, was conducted. The SPSS IBM Statistics 26, R version 4.3.1, and R studio were used.

Results

A total of 261 patients and 30 urologists participated in the study. The mean age of patients was 66.09 ± 8.67 years, ranging from 40 to 90 years. The demographic and clinical characteristics of the patients are summarized in Table 1.

Patients’ perspectives

A considerable proportion of patients indicated limited knowledge about BPH, with 27.6% reporting no prior awareness and 58.6% perceiving their understanding as insufficient. Only 13.8% of patients reported adequate knowledge about BPH. Regarding disease progression, 50.6% of participants believed BPH to be a progressive condition, while 43.7% were unaware of its progression, and 4.6% considered it non-progressive. Significant associations were observed between patients’ perception of their BPH knowledge sufficiency and their belief in disease progression (P -Value < 0.05). The main reasons cited for seeking treatment included frequency (22.8%), intermittency (15.7%), and incomplete voiding (13.4%) as shown in Table 2.

Approximately 37.2% of patients delayed seeking medical attention for six months after symptom onset, with 55.4% attributing this delay to lack of awareness. Concerns expressed by patients included worries about worsening urinary symptoms (29.9%), malignancy, and sexual dysfunction (Table 3).

While 59.9% of patients expressed satisfaction with their urologist’s initial consultation, 67.8% desired further information about BPH. Regarding treatment modalities, 61% of patients preferred pharmacological treatment, while 13.8% opted for surgical intervention. Notably,

Table 1 Characteristics of patients

Age	≤ 55 years: 56 patients (21.5%) 56–65 years: 71 patients (27.2%) 66–75 years: 72 patients (27.6%) > 75 years: 62 patients (23.8%)	Mean ± SD: 66.09 ± 8.67 (years)
Level of education (International Standard Classification of Education)	No formal education: 37 patients (14.2%) Primary education (e.g., elementary school): 62 patients (23.8%) Secondary education (e.g., high school diploma or equivalent): 103 patients (39.5%) Post-secondary non-tertiary education (e.g., vocational training): 31 patients (11.9%) University education (Bachelor’s degree, Master’s degree, Doctorate or equivalent): 28 patients (10.7%)	
Body Mass Index (Mean ± SD)	26.6 ± 2.5 (kg/m ²)	
Smoking history	52 patients (19.9%)	
Past Medical History	Diabetes mellitus: 22 patients (8.4%) Hypertension: 55 patients (21.1%) Chronic obstructive pulmonary disease: 45 patients (17.2%) Cardiovascular events: 20 patients (7.7%)	
History of bladder stone formation	11 patients (4.2%)	
History of urinary retention	38 patients (14.5%)	
International Prostate Symptom Score (Mean ± SD)	17.1 ± 9.4	

Table 2 The most important reasons compelling patients to visit a urologist for the treatment of benign prostatic hyperplasia. Multiple answers questions

	Number	Percent
Frequency	99	22.8
Intermittency	68	15.7
Incomplete voiding	58	13.4
Dysuria	44	10.1
Dribbling	40	9.2
Nocturia	40	9.2
Suprapubic pain	27	6.2
Hematuria	26	6
Cystitis	9	2.1
Febrile infectious	4	0.9
Total	434	100

23.2% felt inadequately informed to make a treatment decision.

Among those favoring pharmacological treatment, 54.5% cited lower associated risks, while 39.9% expressed concerns regarding surgical complications. Conversely, patients preferring surgical intervention (13.8%) cited definitive treatment (61.8%) and expert recommendations (26.5%) as primary factors.

Table 3 Concerns of patients with benign prostatic hyperplasia. Multiple answers questions

	Number	Percent
Worsening of urinary symptoms	136	29.9%
Malignancy	90	19.8%
Sexual dysfunction	60	13.2%
Urinary incontinence	56	12.3%
Urethral stricture	55	12.1%
Requirement of surgery	33	7.3%
Lifelong need for medication	20	4.4%
Disease-related mortality	5	1.1%
	455	100.0%

Patients voiced apprehensions about surgical complications, with 67.8% concerned about urethral stricture, 64% about erectile dysfunction, and 69% about urinary incontinence.

The effect of age and educational level on patients’ perspective

For a more accurate assessment, patient responses were analyzed based on age and educational level.

Educational levels were classified according to the ISCED as detailed in the “Materials and Methods” section. Among patients with “No formal education,” “Primary education,” “Secondary education,” “Post-secondary non-tertiary education,” and “University education,” the proportions who considered their knowledge about BPH insufficient (indicating no information or insufficient information) were 86.5%, 82.3%, 89.3%, 74.2%, and 96.4%, respectively. Additionally, 62.2%, 59.7%, 75.7%, 64.5%, and 67.8% of patients in these educational groups expressed a desire for further information about BPH. When considering preferred treatment, 70.3%, 51.6%, 65%, 71%, and 42.8% of these patients preferred pharmacological treatment, respectively.

Statistical analysis revealed no significant differences in patients’ perceptions of their knowledge about BPH ($P=0.16$), the need for more information ($P=0.23$), and preferred treatment methods ($P=0.09$) across different educational levels.

Patient responses were also grouped by age. Among age groups of ≤55 years, 56–65, 66–75, and >75 years, the percentages of patients considering their knowledge about BPH insufficient were 89.3%, 87.3%, 80.6%, and 88.7%, respectively. Furthermore, 66.1%, 67.6%, 68.1%, and 69.4% of patients in these age groups expressed a desire for further information about BPH. The analysis indicated no significant differences in patients’ perceptions of their knowledge ($P=0.67$) or their need for more information ($P=0.98$) based on age groups.

A noteworthy finding was that patients over 75 years of age showed a significantly higher preference for surgical treatment compared to other age groups ($P=0.001$).

Table 4 Comparison of patients’ responses by age regarding preferred treatment choices

If you need treatment, which treatment modality do you choose?	age				Total	P-Value
	≤ 55	56–65	66–75	> 75		
Pharmacological treatment	39(14.9%)	53(20.3%)	47(18%)	20(7.7%)	159(60.9%)	0.001
Surgical intervention	2(0.8%)	3(1.1%)	5(1.9%)	26(10%)	36(13.8%)	
Don't have enough information to answer	15(5.7%)	15(5.7%)	20(7.7%)	16(6.1%)	66(25.3%)	
I do not intend to take any treatment	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	
Total	56(21.5%)	71(27.2%)	72(27.6%)	62(23.8%)	261(100%)	

Table 5 Scoring the contribution of each problem caused by BPH to the overall concern of the patient. The Mean comparison and P-Value between patient and urologists scores

Variables	Patients			Urologists			P-Value	
	Number	Mean	Sd	Number	Mean	Sd	T-test	Mann-Whitney U
Personal Life	241	5.66	2.76	30	5.70	1.68	0.919	0.800
Job	241	4.20	3.18	30	4.90	2.09	0.112	0.064
Social Life	243	4.95	2.83	30	5.47	1.70	0.160	0.222
Entertainment	242	4.78	2.76	30	4.40	2.08	0.368	0.468
Sleep	244	5.52	2.81	30	7.10	1.75	< 0.05	0.003
Fear of disease symptoms	244	6.01	2.85	30	6.30	1.90	0.460	0.770
Fear of Cancer	243	5.83	3.03	30	6.93	2.42	0.056	0.083
Embarrassment of the symptoms	241	4.61	2.79	30	4.87	2.33	0.629	0.552
Married (Intimate) Life	238	5.02	2.85	30	5.67	2.11	0.232	0.200
Daily Activities	201	4.92	2.75	30	5.53	1.89	0.235	0.208

Table 6 The Cronbach’s alpha of the 10-item questionnaire about the contribution of each problem caused by BPH to the overall concern of the patient

Patients		Urologists		Total	
Number	Cronbach’s Alpha	Number	Cronbach’s Alpha	Number	Cronbach’s Alpha
195	0.928	30	0.90	225	0.926

Detailed comparisons of responses regarding preferred treatment methods by age group are presented in Table 4.

Urologists’ perspectives

Participating urologists had an average of 9.41±1.742 years of BPH treatment experience. A majority (86.7%) believed patients lacked sufficient BPH knowledge, attributing treatment delays to patient information deficits (100%) and expressing concern (83.3%) regarding long-term clinical complications resulting from delayed treatment.

All urologists recommended pharmacological treatment as the initial BPH approach, with 80.0% considering alpha-blockers most effective. Additionally, 16.7% noted positive patient feedback with combination therapy (alpha-blockers and 5 α-reductase inhibitors).

To assess the impact of BPH on patients’ lives, ten similar questions were posed to both patients and urologists. In this way, both patients and urologists were asked to score the contribution of each problem caused by BPH to the overall concern of the patient on a scale from 1 (no contribution) to 10 (largest possible contribution).

Table 5 displays the comparison between the two groups, revealing a statistically significant disparity only in relation to the effect of BPH on sleep. Notably, the Cronbach’s Alpha coefficient for this comprehensive 10-item questionnaire exceeded 0.90 for all participants (Table 6).

Factor analysis results

Factor analysis, incorporating answers from both urologists and patients, revealed that 86.63% of the total variance in the dataset can be explained by five principal components (PCs). The first PC (60.88%) pertained to the impact of symptoms on personal life, job, social life, and entertainment. The second PC (8.31%) addressed the fear of disease symptoms and cancer. The third PC (6.03%) focused on interference with married (intimate) life, while the fourth PC (5.43%) highlighted interference with daily activities. The fifth PC (5.23%) was associated with the embarrassment of disease symptoms (Table 7).

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was very high at 0.921, and Bartlett’s test of sphericity yielded a statistically significant result (p-value<0.05), indicating substantial correlation among the 10 variables.

Discussion

Our study, conducted on a sample of 261 Iranian men diagnosed with benign prostatic hyperplasia (BPH) and involving 30 urologists, revealed that 86.2% of patients and 86.7% of urologists perceived the information provided to patients about BPH as inadequate. Notably,

Table 7 The factor analysis results of the 10-item questionnaire about the contribution of each problem caused by BPH to the overall concern of the patient

Variables	Components*					Total
	1	2	3	4	5	
% Explained Variance	60.88%	8.31%	6.03%	5.43%	5.23%	85.89%
Personal Life	0.53	0.40	0.48	0.26	0.19	Impact of Symptoms
Job	0.77	0.00	0.27	0.38	0.01	
Social Life	0.76	0.31	0.20	0.15	0.33	
Entertainment	0.74	0.33	0.09	0.15	0.42	Fear of Symptoms
Fear of disease symptoms	0.32	0.61	0.39	0.44	0.16	
Fear of Cancer	0.17	0.89	0.21	0.17	0.12	
Married (Intimate) Life	0.20	0.25	0.88	0.10	0.19	Married (Intimate) life
Daily Activities	0.41	0.22	0.49	0.53	0.20	Interference with Daily Activities
Sleep Problems	0.25	0.26	0.09	0.84	0.25	
Embarrassment of the symptoms	0.28	0.13	0.24	0.27	0.85	Embarrassment

*Weights from rotated components with VARIMAX method.

patients across all educational levels and age groups expressed a desire for more information, with no significant differences observed among these subgroups. These findings are consistent with prior studies, emphasizing the widespread desire among patients to acquire detailed knowledge beyond the standard provision [19, 22].

Furthermore, our study illustrated that patients who possessed a sufficient understanding of BPH exhibited more realistic expectations concerning the disease’s progression. Notably, in accordance with the perspectives of the urologists, a notable portion of patients who delayed seeking treatment for more than 6 months after symptom onset attributed this delay to a lack of awareness. It is imperative to emphasize that such delays in seeking treatment for BPH can potentially lead to complications, including kidney damage [23].

Our study’s findings significantly affirmed that urologists prioritize concerns regarding the occurrence of clinical complications stemming from prostate enlargement in patients with BPH. A study conducted by Gannon et al. in 2004, focusing on men with LUTS in Britain, revealed that patients’ uncertainty about the nature and origin of urinary symptoms, coupled with their gradual onset, contributed to delays in seeking medical intervention [24]. These findings underscore the critical need for initiatives aimed at augmenting public knowledge regarding BPH and its associated complications.

Notably, various studies have identified different urinary symptoms as the most bothersome for BPH patients. For example, a study by Weibl et al. in 2015, involving 426 BPH patients, highlighted weak urine stream and nocturia as the most frustrating urinary symptoms [25]. In contrast, our study found that patients primarily cited frequency, intermittency, and incomplete voiding as the most troublesome urinary symptoms prompting them to seek treatment. These variations in symptom perception underscore the subjective nature of BPH symptoms

and emphasize the importance of tailoring treatment approaches based on individual patient experiences.

The concerns and fears of patients regarding BPH and its repercussions on their lives can precipitate feelings of anxiety and, in certain instances, even contribute to psychiatric disorders. Previous research has emphasized the prevalence of malignancy as a predominant concern among individuals afflicted with BPH [19, 26]. In our present study, we observed that patients primarily expressed apprehension regarding the exacerbation of urinary symptoms, the potential for malignancy, and the onset of sexual dysfunction.

Conversely, our findings revealed that urologists predominantly prioritize concerns pertaining to the long-term clinical complications associated with BPH. This disparity in concerns between patients and urologists underscores the imperative of effectively addressing and educating patients about their specific anxieties to ameliorate distress and enhance the overall quality of patient care.

BPH-related urinary obstruction symptoms significantly diminish patients’ quality of life, exerting a profound impact on various facets of their personal lives [27, 28]. A study by Roehrborn et al. comprehensively evaluated the frequency, severity, and consequences of LUTS and benign prostate enlargement on the quality of life of over 1000 men aged 50 and above [29]. Their findings illuminated the detrimental effect of BPH on patients’ quality of life and marital relationships.

In our study, we employed a similar set of questions to investigate the impact of BPH on different aspects of patients’ lives, encompassing both urologists and patients. In this way both groups were asked to determine the contribution of each problem caused by BPH to the overall concern of the patient. The responses from patients underscored the adverse effects of BPH on various dimensions of their personal lives. Notably, our study

revealed a striking alignment between the attitudes of urologists and patients when evaluating the impact of BPH on different aspects of patients' lives. This congruence highlights the shared recognition among urologists and patients regarding the substantial impact BPH can exert on overall well-being and underscores the imperative of addressing these concerns comprehensively in treatment plans.

The findings from our study are consistent with prior research, which has demonstrated patients' inclination to avoid surgery and instead favor pharmacological treatments for managing BPH [12, 19, 25]. Patients' reluctance towards surgical interventions primarily stems from concerns regarding potential complications, such as urinary incontinence, erectile dysfunction, and urethral stricture. In a study by Emberton et al. involving 502 BPH patients from five European countries, more than three-quarters of participants expressed a preference for a medication that reduces the risk of surgery over one that provides rapid improvement in urinary symptoms [26]. It is noteworthy that in our study population, patients older than 75 were significantly more inclined to opt for surgical treatment compared to other age groups. This trend may be attributed to the increasing severity of symptoms associated with aging and the desire for a definitive treatment solution.

This apprehension underscores the critical role of patient education and counseling in BPH management. Urologists play a pivotal role in providing comprehensive information about the potential risks and benefits associated with different treatment modalities. By addressing patients' concerns and empowering them with knowledge, urologists can facilitate informed decision-making regarding BPH management. This patient-centered approach not only enhances patient satisfaction and engagement but also ensures that treatment plans align with patients' preferences and priorities, ultimately optimizing therapeutic outcomes.

Limitations of the study

The primary limitation of our study was its relatively small sample size. While our findings provide valuable insights into the attitudes and preferences of Iranian patients with BPH and urologists, a larger sample size would enhance the robustness and generalizability of our results. Specifically, to improve the generalizability of insights drawn from interviews with urologists, it would be beneficial to engage a larger cohort of Iranian urologists. Future research should aim to address this limitation by conducting multicenter studies that involve larger and more diverse participant populations, including individuals of various races and ethnicities, as well as a wider range of urologists educated at different universities. By expanding the scope of research to include a broader

demographic spectrum, more accurate and generalizable conclusions regarding the management of BPH can be drawn, thus further advancing our understanding and improving patient care.

Conclusion

This study enhances our understanding of patients' attitudes and concerns about BPH. It provides a comparative analysis of the attitudes of urologists and patients by evaluating the treatment approaches of urologists when dealing with BPH. Gaining insights into the concerns, expectations, and preferences of patients with BPH is crucial for more effective disease management.

Our findings reveal a significant lack of knowledge about BPH among patients across various educational levels and age groups within our community. This highlights the need for the health and treatment system to increase public awareness about BPH, which can facilitate timely referrals at the onset of the disease and help prevent potential complications. Additionally, urologists' efforts in thoroughly explaining the various aspects of the disease can alleviate patients' concerns, align their expectations, and assist them in selecting appropriate treatment options.

Abbreviations

BPH	Benign Prostatic Hyperplasia
LUTS	Lower Urinary Tract Symptoms
IPSS	International Prostate Symptom Score
QoL	Quality of Life
ISCED	International Standard Classification of Education
SD	Standard Deviation
CI	Confidence Intervals
PCA	Principal Component Analysis
ISCED	International Standard Classification of Education

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12894-024-01612-7>.

Supplementary Material 1

Supplementary Material 2

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Author contributions

Conceptualization: J.H., and A.A.K. Investigation: A.A.K., M.A.H., and M.F. Validation: A.R.A., and J.H. Writing/Original draft preparation: J.H., A.A.K., A.R.A., M.F., and M.A.H. Writing/Review and editing: J.H., M.A.H., A.A.K. Supervision: J.H., and A.A.K. Project administration: J.H. All authors have read and agreed to the published version of the manuscript. All authors reviewed the manuscript. We declare that Large Language Models (LLM) were not used in the preparation and writing of this article.

All authors contributed equally to the manuscript and read and approved the final version of the manuscript. All authors are accountable for all aspects of the work.

All authors have confirmed that they have prepared this article in their personal capacity and not as an official representative or on behalf of Iran's government.

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Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The study protocol was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (Ethical code No.IR.SBMU.RETECH.REC.1398.473). Written informed consent was obtained from all participants before any intervention, and the study adhered to ethical standards, including those regarding plagiarism, data fabrication, and duplicate publication.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Clinical trial number

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Author details

¹Men's Health and Reproductive Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Urology Department, Shohada-e-Tajrish Hospital, Shahid Beheshti University of Medical Sciences, Tajrish Sq, Tehran, Iran

³Infertility and Reproductive Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁴Ph.D. in Biostatistics, Lecturer in Statistics, ECO College of Insurance, Allameh Tabataba'i University, Tehran, Iran

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