

# Prostate myths: What is the prostate awareness in the general male population in Turkey?

*Prostat mitleri: Türkiye'deki genel erkek popülasyonundaki prostat farkındalığı nedir?*

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## ABSTRACT

**Objective:** The aim of the study was to evaluate prostate awareness in the general male population and discover the common misinformation about prostate diseases (PDs).

**Material and methods:** A cross-sectional population sampling was performed in the general population for men between the ages of 18-70 with a survey conducted by medical students. The survey consisted of 15 questions addressing different aspects of PDs and common misinformation in the general population. All participants were stratified according to age, degree of education, occupation and whether the person himself or a close relative had visited a urologist for PDs. All questionnaires were anonymous, and patients were informed about the confidentiality of the results.

**Results:** A total of 1004 men between the ages of 18-70 were included in the study (mean age 38.0±12.9 years). Of those included, 20.2% were primary school graduates, 8.6% were secondary school graduates, 25.5% were high school graduates, 39.8% were university graduates, and 5.8% had a doctorate or higher education. Of all 1004 men, 31.5% had seen a urologist or attended an interview with a close relative for a PDs-related visit in a urologist's office; 56.2% reported "prostate" as a disease and only 16.5% as an organ. In terms of beliefs, 50.2% believed that all men had a "prostate," 5.4% said that sexual activity would cause PDs, 13% thought that sexual activity would prevent PD, 24.9% reported that a rectal exam would affect sexual activity, and 63.5% believed that urinating when squatting would prevent prostate hyperplasia. Prostate cancer transmission to sexual partners was marked as true by 5% of the men. As many as 41.3% of the participants believed that early prostate surgery for BPH would prevent prostate cancer, and 13% reported that sexual activity ceases with prostate surgery and that retrograde ejaculation or anejaculation is the end of sexual activity in men.

**Conclusion:** The survey clearly showed that prostate awareness is still very unsatisfactory in the Turkish male population and that urologists need to better inform the general population. PD knowledge is still lacking throughout all education levels. This is a unique study showing a cross-sectional analysis of the Turkish community; however, the applicability of these results to other communities should be evaluated.

**Key words:** General population; misperception; myth; prostate; prostate cancer; prostatitis.

## ÖZET

**Amaç:** Bu çalışmanın amacı, genel erkek popülasyonundaki prostat farkındalığını değerlendirmek ve prostat hastalıkları (PH) hakkında sıkça yanlış bilinen bilgileri ortaya koymaktır.

**Gereç ve yöntemler:** Tıp fakültesi öğrencileri tarafından yürütülen bir anket çalışması ile genel popülasyondaki 18-70 yaş arasındaki erkekler arasında kesitsel bir örnekleme yapılmıştır. Anket PH'nın değişik yönlerini ve halk arasında sıkça kullanılan ve bilinen yanlış bilgileri irdeleyen 15 soru içermektedir. Tüm katılımcılar yaş, eğitim durumu, meslek ve PH nedeni ile kendisi veya bir yakını için bir üroloğa gidip gitmemesi açısından gruplandırılmıştır. Tüm anket soruları gizli tutulmuştur ve hastalar sonuçların gizliliği hakkında bilgilendirilmiştir.

**Bulgular:** Çalışmaya 18-70 yaşları arasında toplam 1004 erkek dahil edilmiştir (ortalama yaş 38,0±12,9 yıl). Hastaların %20,2'si ilköğretim, %8,6'sı orta okul, %25,5'i lise, %39,8'i üniversite ve %5,8'i ise doktora veya daha üstü mezunuydu. %31,5'i PH nedeni ile kendisi veya bir yakını için üroloğa gitmiş bulunmaktadır. Hastaların %56,2'si prostatı bir hastalık olarak nitelendirirken sadece %16,5'i bir organ olarak adlandırmıştır. %50,2'si tüm erkeklerin prostatı bulunduğunu söylemiştir. %5,4'ü cinsel ilişkinin PH'na neden olduğunu belirtirken %13'ü ise cinsel ilişkinin PH'dan koruduğunu söylemiştir. Katılımcıların %24,9'u rektal muayenenin cinsel hayatı etkileyeceğini bildirirken %63,5'i de oturarak işemenin prostat hiperplazisi gelişmesini önleyeceğini belirtmiştir. Hastaların %5'i tarafından prostat kanserinin cinsel partnere bulaştırılabileceği ifadesi doğru olarak işaretlenmiştir. Katılımcıların %41,3'ü BPH nedeni ile yapılacak olan erken cerrahinin prostat kanserinden koruyacağını belirtirken %13'ü de cinsel hayatın prostat cerrahisi ile sona ereceğini ve retrograd ejakülasyon veya anejakülasyonun erkeklerde cinsel hayatın sona erdiği anlamına geldiğini bildirmiştir.

**Sonuç:** Bu anket çalışması Türk erkek popülasyonundaki prostat farkındalığının hala oldukça düşük olduğunu ve biz ürologların halkı daha iyi bilgilendirmemiz gerektiğini açıkça göstermektedir. Tüm eğitim seviyesindeki katılımcılarda bilgi eksikliği bulunmaktadır. Bu çalışma Türk halkının kesitsel analizini gösteren bir çalışmadır, fakat bununla birlikte bu sonuçların diğer popülasyonlar için uygulanabilirliği araştırılmalıdır.

**Anahtar kelimeler:** Genel popülasyon; yanlış anlama; mit; prostat; prostat kanseri; prostatit.

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## Introduction

The nature of medical information distribution among the general population has important implications for health care. Issues, such as quality of care, validity and consistency of available information, and effects on the doctor-patient relationship, are major factors in patients' medical attention-seeking behavior. Without the recognition of symptoms and their severity, patients with prostate diseases (PDs) will not promptly seek medical attention, resulting in chronic renal failure due to long-standing residual urine, late stage prostate cancer or diminished quality of life. Awareness of the causes of PDs may help patients make appropriate lifestyle changes to reduce the risk of PDs and allow early interventions with fewer side effects and better results. In addition, the awareness of treatment benefits could aid compliance.<sup>[1]</sup> However, there is a lack of public awareness of PDs. Studies have shown relatively poor understanding and treatment of PDs by general practitioners.<sup>[2]</sup> Given that even medical professionals are undereducated about PDs, it is unlikely that the general public will have a good understanding. However, there is very limited and mostly anecdotal data on the rate of misconceptions about PDs. Although some of these data may be local and cultural, some are universal. Having data on the knowledge regarding PDs in the general population may help inform the population and patients.

The aim of this study was to evaluate prostate awareness in the general male population and to discover the common misinformation about PDs. Given the misperceptions in the population, new guidelines informing the general population and patients may be warranted.

## Material and methods

A cross-sectional population sampling between the ages of 18-70 was made between February 2009 and July 2010 at Selçuk University, School of Medicine, Department of Urology. An even stratification among the population, in terms of age (in decades), degree of education, occupation and whether the person himself or a close relative had visited a urologist for PDs, was performed.

A structured questionnaire was developed based on the common misconceptions encountered in urology clinics and an internet search for the key words "prostate myths" and "misconceptions on PDs". The questionnaire consisted of two parts. The first part gathered demographical data on the participant for stratification purposes. In the second part, 15 items addressing different aspects of PDs and common misinformation in the general population were addressed. The questionnaire was given by interviewers after verbal informed consent was obtained from the participants. All items had 3 answer options: "Yes", "No" or

"I don't know". The participants completed the questionnaires anonymously. A comparative analysis was performed for each of the 15 items for the different age groups, education levels, occupation and prior history of a urologist visit.

### Statistical analysis

The Chi-square test was used, and  $p < 0.05$  was accepted as statistically significant. All statistical analysis tests were performed with the Statistical Package for the Social (SPSS Version 17.0 for Windows, SPSS Inc., Chicago, IL, USA).

## Results

A total of 1004 men, who accepted the interview and provided consent, were included in the study. The mean age was  $38.0 \pm 12.9$  years (range 18-78 years). In terms of education, 20.2% were primary school graduates, 8.6% were secondary school graduates, 25.5% were high school graduates, 39.8% were university graduates, and 5.8% had received a doctorate or higher education. Of the 1004 men, 31.5% had seen a urologist or attended an interview with a close relative for a PDs-related visit in a urologist's office. Age-specific distribution is listed in Table 1.

### Item-1: Prostate is a disease

Of all of the participants, 77.8% ( $n=781$ ) reported "prostate" as a disease. Of those, 70% have been to a urologist himself or attended a urologist's visit with a relative. Statistically, there was no difference between the age groups ( $p > 0.05$ ).

### Item-2: All men have prostates

Of all the participants, 47.25% responded correctly, while 14.26% did not know the answer. This result is in accordance with the finding of the first item, which states that prostate is a disease. Interestingly, 74.9% of those who made a wrong choice reported to have been to a urologist's office visit for himself or a relative. Young participants (age  $< 40$  years) answered "no" more than older participants ( $p < 0.05$ ).

### Item-3: Excessive sexuality results in prostate cancer

Only 5.8% ( $n=59$ ) believed that frequent sex results in prostate cancer. In the age analysis, men over the age of 50 reported to believe that sexuality resulted in prostate cancer more than those younger than 50 (the mean "yes" percentage for participants aged  $> 50$  and  $< 50$  were 11.9 and 6.1%, respectively;  $p < 0.05$ ).

### Item-4: Excessive sexual activity protects from prostate cancer

The rate of "yes" answers for this item was 13.9%. A majority of participants reported that they did not know the answer (48.7%). There was no significant difference between the age groups.

Table 1. Age distribution of answers

Question	Answers	Age					p value
		18-30 (%)	30-40 (%)	40-50 (%)	50-60 (%)	>60 (%)	
1	Yes	78.8	80.9	78.6	73.4	75.5	>0.05
	No	16.0	15.8	17.3	16.0	15.9	
	Don't know	5.2	3.2	4.0	10.6	9	
2	Yes	33.9	44.5	58.4	62.0	55.5	<0.05
	No	51.3*	42.5*	30.2	24.0	30	
	Don't know	14.6	12.9	11.2	14.0	14.5	
3	Yes	5.7	7.3	6.8	12.6**	11.1**	<0.05
	No	54.8	60.1	62.9	50.6	45.5	
	Don't know	39.5	32.5	30.3	36.8	43.4	
4	Yes	14.2	13.7	16.5	21.3	15.6	>0.05
	No	35.8	41.6	44.8	30.6	37.7	
	Don't know	50.0	44.7	38.7	48.1	46.7	
5	Yes	7.8	7.0	8.4	14.6	11.2	<0.05
	No	64.4	66.2	72.9	54.6†	56.6†	
	Don't know	27.8	26.8	18.7	30.8	33.2	
6	Yes	31.7‡	24.0	21.9	28.0	20.0	<0.05
	No	38.5	48.6	58.0	51.3	54.4	
	Don't know	29.8	27.4	20.1	20.7	25.6	
7	Yes	10.8	12.9	13.7	18.¥	18.8¥	<0.05
	No	45.9	45.7	50.5	44	45.5	
	Don't know	43.3	41.4	35.8	38	35.5	
8	Yes	17.9	14.9	17.5	21.3	20.0	>0.05
	No	36.9	43.7	45.9	44.0	41.5	
	Don't know	45.2	41.4	36.6	34.7	38.5	
9	Yes	60.4□	61.2□	64.5□	52.6	43.3	<0.05
	No	15.7	17.3	19.3	25.3	34.5	
	Don't know	23.9	21.4	16.2	22.1	22.2	
10	Yes	9.5	7.7	8.4	14.1§	5.5	<0.05
	No	65.4	69.2	67.3	57.3	62.2	
	Don't know	25.1	23.1	24.3	28.6	32.3	
11	Yes	33.6	38.4	39.5	45.3¶	31.1	<0.05
	No	41.6	37.2	36.6	26.0	30.0	
	Don't know	24.8	24.4	23.9	28.7	18.9	
12	Yes	37.7	34.8	48.7#	43.3#	54.4#	<0.05
	No	23.6	30.2	21.7	22.0	18.8	
	Don't know	38.7	34.8	29.6	34.7	26.6	
13	Yes	17.3	11.7	16.6	22.0	18.8	>0.05
	No	26.2	31.3	27.0	24.0	25.8	
	Don't know	56.5	57.0	56.4	54.0	55.4	
14	Yes	7.0	5.3	9.6	13.4Ω	17.7Ω	<0.05
	No	54.8	57.8	55.7	44.6	46.6	
	Don't know	38.2	36.9	38.7	42.0	35.7	
15	Yes	17.6	16.2	18.5	26.0Ψ	27.7Ψ	<0.05
	No	43.7	47.5	46.0	33.3	34.6	
	Don't know	38.7	36.3	35.5	40.7	37.7	

\*: p<0.05 for <40 y vs. >40 y; \*\*: p<0.05 for >50 y vs. <50 y; †: p<0.05 for >50 y vs. <50 y; ‡: p<0.05 for <30 y vs. >30 y; ¥: p<0.05 for >50 y vs. <50 y; □: p<0.05 for <50 y vs. >50 y; §: p<0.05 for 50-60 y vs. others; ¶: p<0.05 for 50-60 y vs. others; #: p<0.05 for >40 y vs. <40 y; Ω: p<0.05 for >50 y vs. <50 y; Ψ: p<0.05 for >50 y vs. <50 y

**Item-5: May I sexually transmit this disease to my wife?**

Only 6.8% of the participants believed that they could transmit cancer to their partners. When the age specific answers were analyzed, only 55.6% of the participants who are older than 50 years reported “no” as their answer. This was significantly different from younger participants ( $p<0.05$ ). A total of 72.9% in the 40-50-year-old age group answered this question correctly.

**Item-6: Prostate examination affects sexual life**

The stigma regarding rectal prostate examination was not proven in our study group. Almost half of the participants (47.9%) answered “no” to this item. Subjects younger than 30 were more concerned than their elders, with a 31.7% “yes” rate ( $p<0.05$ ). Interestingly, 69.1% of the “yes” responders, personally or together with a family member, have been to a urologist for a PD-related visit.

**Item-7: A prostate cancer biopsy will lead to the dissemination of the disease**

For this question, 46.7% replied “no,” and 76.5% of the men who believed that the disease could disseminate had been to a urologist. There were statistically significant more “yes” answers in responders older than 50 compared to younger individuals ( $p<0.05$ ).

**Item-8: Prostate biopsy negatively affects my sexual life**

Approximately 16.6% of the participants believed that prostate biopsy would affect their sexual life. No difference between the age groups was noted. Among those who reported “yes,” 70.5% had been to a urologist, 13.3% were medical staff, and 25.3% had completed university or higher education.

**Item-9: Urinating while squatting or sitting prevents prostate enlargement**

Approximately 58.9% of our study participants believed that a squatting or sitting position does prevent prostate enlargement. There were statistically significant differences between the groups of less than 50 and the other age groups ( $p<0.05$ ) and between  $>60$  years and the other participant groups.

**Item-10: Prostate surgery will end my manhood**

Only 7.2% of the participants answered that prostate surgery would end their manhood. A spike of “yes” answer was noted in the 50-60-year-old participant group (14.1%,  $p<0.05$  compared to other age groups). Interestingly, the lowest rate was noted in the  $>60$ -years-old group, but this was only significant with the 50-60-year-old group.

**Item-11: Prostate cancer only affects older men**

The term “older” was explained to the participants as older than 65 years of age. There was a fairly even distribution of answers to this item. The younger the participant, the more “yes”

answers were encountered. Regarding the “yes” choice, there was a statistically significant difference between those younger and older than 50 years of age.

**Item-12: Early prostate surgery prevents prostate cancer**

Approximately 41.5% of the group believed that early prostate surgery prevented the development of prostate cancer. People older than 40 years of age were significantly more likely to answer “yes” than the younger participants ( $p<0.05$ ).

**Item-13: An elevated blood PSA level always shows the presence of prostate cancer**

More than half of the participants did not know the answer to this question (59.4%).

**Item-14: If operated on, prostate cancer spreads.**

A 7.5% rate of “yes” answers was encountered, with 53.1% answering “no”. Approximately 57.3% of the “yes” answerers had been to a urologist. Those older than 50 were more likely than younger participants ( $p<0.05$ ) to believe that surgery would result in the dissemination of the disease to the body.

**Item-15: Anejaculation means the end of manhood**

Approximately 19% believed that anejaculation meant the end of manhood. Among those who believed this, 71.2% had a prior urologist visit, and 30.4% were university or higher educated. Men older than 50 reported “yes” more than younger participants ( $p<0.05$ ).

## Discussion

The associations of PDs with age, sexuality, and continence issues complicate problems in all populations. These issues affect the choice, compliance, delay of treatment, and avoidance to ask for medical attention, thus decreasing the quality of life in patients. This is a unique study that provides information about the awareness of PDs in the general population and how well we, as urologists, inform patients about PDs. Because there is no previous study designed to assess these aspects, a unique inventory was formed to assess the common misbeliefs urologists face during our daily practice. Some of the items may be universal, and some are culture specific. As noted earlier, only after similar studies have been completed can we tell which items are universal.

There are very limited tools assessing the patient’s knowledge about PDs, which are mostly focused on prostate cancer (PCa) patients.<sup>[3]</sup> In a study where the knowledge level of patients with localized PCa were assessed using a specially designed questionnaire, patients reported frequently consulting the internet<sup>[4,5]</sup>, making their decisions based on incomplete data<sup>[4]</sup>, and using anecdotes from family and friends in selecting treatment

options.<sup>[6]</sup> Furthermore, patients had different levels of desire to participate in decision-making<sup>[5]</sup> and informational needs<sup>[7]</sup>, and healthcare providers were frequently unaware of the individual patient's preferences.<sup>[8,9]</sup> There is a strong need for individualized approaches to help men address their thoughts and feelings about being diagnosed with PCa.<sup>[10]</sup>

The word "prostate" has the stigma of being directly associated with and being used as a common acronym for its diseases. This is an important misbelief because the rate among the general population is 77.8% in our study group.

Some of the items in our study have a scientific background, and some of them are totally mythical. For example, the relationship between sexual activity and PCa has been explored, according to an article published in the Journal of the American Medical Association. Frequent sexual activity appears to provide a protective benefit against the development of PCa.<sup>[11]</sup> The association of PCa and sexually transmitted diseases has been vastly investigated, and no direct correlation has been found thus far.<sup>[12,13]</sup>

Like prostate rectal examination, transrectal ultrasound guided (TRUS) biopsy also carries a similar stigma in the community. Some swelling and inflammation alongside the prostate gland will occur after a biopsy exam, but these are not significant enough to impact erections. The scientific basis of biopsy and the possible dissemination of PCa are not yet clearly defined. In a study by Moreno et al.<sup>[14]</sup>, a positive RT-PCR PSA signal may have resulted from the release of prostate cells into the peripheral circulation after a TRUS biopsy and transurethral resection of prostate (TURP). However, the clinical significance of these circulating cells to form metastases has not been identified.

Another common question encountered in our urology clinics is voiding position and its relation to the development of PDs. How this misconception has originated is unknown, but a widespread belief that voiding when squatting prevents prostatic enlargement is frequently practiced or asked to urologists in Turkey. There is inconsistency among the previous studies about the sitting or standing position and its effects on the uroflowmetric parameters.<sup>[15,16]</sup> A sitting position appears to yield a better peak flow and less post-voiding residual urine. However, this fact is only true when the flow rates are in normal range. Once there is obstruction, the parameters are compatible in different voiding positions.

"Prostate surgery will end my manhood" is somewhat true in certain aspects than most of the other items. Even after nerve-sparing surgery, some degree of erectile dysfunction (ED) and 100% anejaculation is inevitable. Sexual dysfunction following benign prostatic enlargement (BPE) surgery varies consider-

ably, depending on the type of surgery, pre-existing ED, age, co-existing morbidities, such as diabetes and hypertension, and the patients' expectations.<sup>[17]</sup> Retrograde ejaculation (RE) is a well-established side effect of open and transurethral prostatectomy, reported by 60-99% of patients with antegrade ejaculation before surgery.<sup>[18]</sup> The only prospective, randomized trial comparing TURP to watchful waiting did not find that TURP was associated with a higher risk of ED than watchful waiting.<sup>[19]</sup> In general, few data on the impact of minimally invasive procedures on sexual function are available. The risk of ED after transurethral microwave therapy, transurethral needle ablation and the potassium-titanyl-phosphate (KTP) laser is minimal, such as after TURP. The risk of RE after KTP laser ranges from 30 to 75%, correlating to the completeness of the laser procedure. If a TUR-like cavity is generated, one has to expect a rate of RE similar to conventional TURP.<sup>[17]</sup> Another common issue for patients is if an early prostate surgery would prevent future cancer. The relationship and procedures of PCa and BPE should be explained to the patients in detail.

In conclusion, the level of knowledge about PDs is less than ideal. We believe that improving the knowledge level in the general population is crucial to improve the standard of care. More informative ways to communicate with patients and their relatives should be developed for better quality of care for the patients.

This survey has been conducted only in one center and included men in a particular region. Nevertheless, this study shows a cross-sectional analysis of the Turkish community; however, applicability of these results to other communities should be evaluated.

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**Informed Consent:** Written informed consent was obtained from patients who participated in this study.

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## References

1. Impicciatore P, Pandolfini C, Casella N, Bonati M. Reliability of health information for the public on the world wide web: systematic survey of advice on managing fever in children at home. *MBJ* 1997;314:1875-81. [CrossRef]
2. Drummond FJ, Carsin AE, Sharp L, Comber H. Factors prompting PSA-testing of asymptomatic men in a country with no guidelines: a national survey of general practitioners. *BMC Fam Pract* 2009;10:3. [CrossRef]
3. Deibert CM, Maliski S, Kwan L, Fink A, Connor SE, Litwin MS. Prostate cancer knowledge among low income minority men. *J Urol* 2007;177:1851-5. [CrossRef]
4. Pai HH, Lau F. Web-based electronic health information systems for prostate cancer patients. *Can J Urol* 2005;12:2700-9.
5. Holmes-Rovner M, Stableford S, Fagerlin A, Wei JT, Dunn RL, Ohene-Frempong J, et al. Evidence-based patient choice: a prostate cancer decision aid in plain language. *BMC Med Inform Decis Mak* 2005;5:16. [CrossRef]
6. Kim SP, Knight SJ, Tomori C, Colella KM, Schoor RA, Shih L, et al. Health literacy and shared decision making for prostate cancer patients with low socioeconomic status. *Cancer Invest* 2001;19:684-91. [CrossRef]
7. Feldman-Stewart D, Brennenstuhl S, Brundage MD, Siemens DR. Overall information needs of early-stage prostate cancer patients over a decade: highly variable and remarkably stable. *Support Care Cancer* 2009;17:429-35. [CrossRef]
8. Rees C, Abed R, Sheard C. development of a reliable and valid questionnaire to test the prostate cancer knowledge of men with the disease. *Patient Educ Couns* 2003;51:285-92. [CrossRef]
9. Mohan R. Family physicians could help in predicting life expectancy without prostate cancer. *J Clin Oncol* 2008;26:690-1. [CrossRef]
10. Halbert CH, Wrenn G, Weathers B, Delmoor E, Have TT, Coyne JC. Sociocultural determinants of men's reactions to prostate cancer diagnosis. *Psychooncology* 2010;19:553-60. [CrossRef]
11. Giles GG, Severi G, English DR, Hopper JL. Frequency of ejaculation and risk of prostate cancer. *JAMA* 2004;292:329. [CrossRef]
12. Anttila T, Tenkanen L, Lumme S, Leinonen M, Gislefoss RE, Hallmans G, et al. Chlamydial antibodies and risk of prostate cancer. *Cancer Epidemiol Biomarkers Prev* 2005;14:385-9. [CrossRef]
13. Korodi Z, Wang X, Tedeschi R, Knekt P, Dillner J. No serological evidence of association between prostate cancer and infection with Herpes Simplex virus type 2 and Human Herpes virus type 8: a nested case-control study. *J Infect Dis* 2005;191:2008-11. [CrossRef]
14. Moreno JG, O'Hara SM, Long JP, Veltri RW, Ning X, Alexander AA, et al. Transrectal ultrasound-guided biopsy causes hematogenous dissemination of prostate cells as determined by RT-PCR. *Urology* 1997;49:515-20. [CrossRef]
15. El-Bahnasawy MS, Fadl FA. Uroflowmetric differences between standing and sitting positions for men used to void in the sitting position. *Urology* 2008;71:465-8. [CrossRef]
16. Unsal A, Cimentepe E. Voiding position does not affect uroflowmetric parameters and post-void residual urine volume in healthy volunteers. *Scand J Urol Nephrol* 2004;38:469-71. [CrossRef]
17. Pohnholzer A, Madersbacher S. Lower urinary tract symptoms and erectile dysfunction; links for diagnosis, management and treatment. *Int J Impot Res* 2007;19:544-50. [CrossRef]
18. Madersbacher S, Alivizatos G, Rioja Sanz C, Nordling J, Emberton M, Gravas S, et al. EAU guidelines on benign prostatic hyperplasia. *Eur Urol* 2004;46:547-54. [CrossRef]
19. Wasson JH, Reda DJ, Bruskevitz RC, Elinson J, Keller AM, Henderson WG. A comparison of transurethral surgery with watchful waiting for moderate symptoms of benign prostatic hyperplasia. The Veterans Affairs Cooperative Study Group on Transurethral Resection of the Prostate. *N Engl J Med* 1995;332:75-9. [CrossRef]