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Benign Prostatic Hyperplasia Patients' Quality Of Life And The Severity Of Their Lower Urinary Tract Symptoms

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Abstract

Background: Benign prostatic hyperplasia (BPH) is a prevalent condition in older men, causing significant morbidity. Benign prostatic hyperplasia can lead to urinary retention, and often the presence of moderate-to-severe lower urinary tract symptoms could impact on patients' quality of life.
Aim: to assess the relation between the severity of lower urinary tract symptoms and quality of life among patients with benign prostatic hyperplasia.
Research design: A descriptive correlational research design was utilized.
Setting: Saudi University Hospital, Urology department.
Sample: A targeted sample of sixty male patients with BPH who were experiencing lower urinary tract symptoms.
Tools:
tool I: A structured interview questionnaire,
tool II: International Prostate Symptom Score,
tool III: Benign prostatic hyperplasia - Specific Quality of life scale.
Results showed that the mean age of studied patients was 51.97±4.94 years. 80% presented with grade II, according to severity of lower urinary tract symptoms, 3.30% had mild symptoms, 71.0 % had moderate symptoms, and 25.0% had severe symptoms. There was a statistically significant positive correlation between the severity of lower urinary tract symptoms and quality of life (P. value <0.01)
Conclusion: The quality of life among patients with benign prostatic hyperplasia decreases with the increment in the severity of their lower urinary tract symptoms.
Recommendation: Further studies are needed to study factors aggravating the severity of lower urinary symptoms among patients with benign prostatic hyperplasia and target interventions that burden its effect on patients' quality of life.

Keywords: Benign Prostate Hyperplasia, Lower Urinary Tract Symptoms & Quality of life.

Introduction

Benign prostatic hyperplasia (BPH) is a prevalent, nonmalignant prostate disorder that primarily affects older men and has surfaced as a significant public health concern in recent years. According to the (Djavan et al., 2023). In 2019, there were 11.26 million new cases of BPH, resulting in 1.86 million years lived with a disability (Alzahrani et al., 2024). This benign enlargement of the prostate gland, marked by increased cell growth, exceeds the normal volume of 20-30 mL and is associated with lower urinary tract symptoms (LUTS) as a consequence of the aging process (Sandhu et al., 2024).

Storage symptoms and voiding symptoms are the two primary categories into which LUTS fall. Issues such as nocturia, urgency, frequency, decreased urine flow rates, incomplete bladder emptying, and hesitancy are examples of storage symptoms. Two main causes of these symptoms are the complex relationships between the bladder, bladder neck, prostate, urethra, and central nervous system, as well as bladder outlet obstruction (BOO), which is brought on by an enlarged prostate and increased smooth muscle tone and resistance (Calogero, et al., 2018). BPH can result in significant complications, including urinary retention, kidney insufficiency, recurrent urinary tract infections, visible blood in urine, and bladder stones. Treatment options consist of lifestyle changes, behavioral modifications, medication, minimally invasive procedures, and surgery (Djavan et al., 2023).

While lower urinary tract symptoms linked to BPH (LUTS/BPH) are generally not life-threatening, they can have a considerable impact on an individual's quality of life. LUTS have effects that extend beyond just the urinary tract. Each patient exhibits varying levels of symptom tolerance, which in turn can heighten the likelihood of encountering challenges in self-care, restrictions in regular activities, as well as feelings of pain, discomfort, anxiety, and depression among men (Almarkhan et al., 2018).

Benign prostate hypertrophy (BPH) and lower urinary tract symptoms (LUTS) cause substantial physical and psychological consequences that could seriously interfere with daily activities, including discomfort, restricted travel and outings, affect the QOL and greatly cost the health-care systems due to concerns about urinary function, prostate cancer, embarrassment about urinary problems, and even psychological problems such as tension, anxiety, and mood disorders. Current surgical and pharmacological therapies are expensive, may not effectively improve prostate function and health but cause adverse effects, Introduction 4 non- pharmacological therapies as tai chi exercise may improve BPH related symptoms and enhance QOL (De Jonge et al., 2023).

Significance of study:

By the age of fifty, the prevalence of BPH has increased to above fifty percent. BPH will be a major cause of illness as life expectancy rises. Urinary symptoms in people with BPH cause increased distress and interfere with certain everyday activities. Managing a BPH diagnosis and its treatment can have a big emotional and psychological impact on the patient, possibly influencing their general happiness, mental health, and social connections. There appears to be a dearth of research examining the relationship between the quality of life and the intensity of lower urinary tract symptoms in people with benign prostatic hyperplasia.

Aim of study:

To assess the relationship between the severity of lower urinary tract symptoms and quality of life among patients with benign prostatic hyperplasia.

Research question:

What is the correlation between lower urinary tract symptoms and quality of life in patients with benign prostatic hyperplasia.

Patients and Methods

Research design:
Descriptive correlational research design was used.
Setting:
This study was carried out in Saudi University Hospital, Urology department.
Sample:
A purposive sample of sixty adult male patients were intentionally selected for inclusion in the study based on specific criteria. These criteria included being male adults over 40 years old with a diagnosis of benign prostatic hyperplasia and the absence of other conditions impacting urination, like neurological ailments, UTIs, or prostate cancer.
Exclusions comprised patients with cognitive impairments or those who declined to take part in the research.
Sample size
In accordance with the findings from the Global report on epidemiology update from 2021, the researcher included 60 male adult patients diagnosed with benign prostatic hyperplasia after determining the necessary sample size using Epi info version 6.
This sample size was calculated to ensure an accurate representation with a confidence level of 95% and a power of 80%. Sample size has been calculated using the following equation: Validity and reliability P 0.07 1-P0.93
Total number N Error rate d 0.05
Stander deviation. Z 1.96
At power 80% and CI 90%, the sample size 60 participants.

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Tools for data collection
Three tools were used to collect relevant data for this study
Tool (I): A structured interview questionnaire:
It was developed and utilized by researchers to gather the necessary data: it included the following parts:
Part (1): Socio-demographic data: This part included age, level of education, occupation, type of work, and residence.
Part (2): Clinical data:
This part included past, present health history, family health history, and presented signs and symptoms.
Tool (II): International Prostate Symptom Score (IPSS): The IPSS is a scoring system used to screen for and diagnose BPH as well as to monitor lower urinary tract symptoms and guide decisions about how to manage the disease, was developed by American Urological Association, 1992. It includes seven questions about the symptoms of lower urinary tract symptoms that asked the patients about how often they have any of the symptoms. Each question had a range from 0 to 5 for its answer. Maximum score of 35 points. Based on total score, the symptoms were categorized as mild (0 -7), moderate (8-19), and severe (20-35).
T**ool (III): Benign prostatic hyperplasia -Specific Quality of life scale:**
In 2004, Cam et al. developed a BPH-specific Quality of Life scale comprising 20 questions focusing on the impact of BPH on quality of life. Patients rated each question from 0 to 3: 0 indicating no bother, 1 for little bother, 2 for moderate bother, and 3 for severe bother. The total Quality of Life score was determined by summing the scores from all 20 questions, ranging from 0 to 60. An increase in the quality-of-life score correlates with a deterioration in the overall quality of life.
Content validity and reliability
The study's validity was confirmed through an evaluation of whether the tools effectively measured their intended constructs. In this research, five professors assessed the tools to guarantee they comprehensively covered all study aspects to fulfill their objectives. On the other hand, reliability was established to determine the accuracy of the data collected in the research. This was evaluated using Cronbach's alpha test, resulting in values of 0.98 for the benign prostatic hyperplasia-specific quality of life scale and 0.824

for the International Prostate Symptom Score (IPSS).

Pilot study

A pilot study was conducted on 10% of patients (6 patients) to evaluate the clarity, feasibility and applicability of tools. The data obtained from pilot study was analyzed and some changes were made. Patients who participated in the pilot study were excluded from the main study.

Ethical consideration

The research proposal received approval from the Ethical Committee. No risks were posed to the study participants during the research process, and the investigator ensured the confidentiality and privacy of the patients under study. The investigator provided a clear overview of the study's objectives and nature to the patients. Patients were informed of their right to decline participation, and their consent to take part in the study was obtained.

Implementation phase

- This study was conducted over a six-month period from September (2023) to March (2024).

Statistical analysis:

Before proceeding with additional statistical analyses, the data underwent normality testing using the Anderson-Darling test and assessment for variance homogeneity. Categorical variables were presented using counts and percentages (N, %), while continuous variables were described with means and standard deviations (Mean, SD). The comparison between categorical variables was conducted using the Chi-square test, and for continuous variables, the t-test was employed. A two-tailed p-value of less than 0.05 was deemed statistically significant. Pearson correlation analysis was utilized to determine associations between scores. All statistical analyses were carried out using IBM SPSS 20.0 software.

RESULTS:

Table (1): Shows that; and the 71. 70 % of them were aged above 50 years. Concerning marital status and education; all of them were educated and married. Also, the table revealed (81.7%) were from urban areas. one-third (28.3%) of patients had hypertension. According to the degree of BPH, it showed that most of the patients (80%) presented with grade II, more than half (61.7%) had symptomatic BPH for one year, and 38.3% had symptomatic BPH for two years.

Variables	**No**	**%**
Age		
Less than 50 yrs.	17	28.30
More than 50 yrs.	43	71.70
Mean ±SD (range)	**51.97±4.94(42-62)**	
Education		
Basic education	2	3.30
Secondary	21	35.00
University education	37	61.70
Occupation		
Working	5	8.30
Not working	55	91.70
Marital status		
Married	60	100.00
Residence		
Rural	11	18.30
Urban	49	81.70
Comorbid conditions (controlled)		
Hypertension (HTN)	17	28.30
Ischemic heart disease (IHD)	5	8.30

Grades of BPH		
Grade I	5	8.30
Grade II	48	80.00
Grade III	7	11.70
Duration of LUTS due to BPH		
Less than 1 year	37	61.70
From 1-2 year	23	38.30

Table (2): Reflects that, most patients had incomplete emptying, frequency, intermittency, and urgency. Most patients had moderate lower urinary tract symptoms (71%), other patients had severe symptoms (25%), and the least percentage of mild symptoms (3.30%).

Lower urinary tract symptoms (LUTs)	**Mean ±SD**	
Incomplete emptying	3.1±0.95	
Frequency	3.0±1.41	
Intermittency	2.95±0.96	
Urgency	2.63±0.84	
Weak stream	2.9±1.05	
Straining	2.73±1.04	
Nocturia	2.55±0.98	
Total IPPS score Mean± SD (range)	19.87±5.07 (15-31)	
Severity of LUTS	**N**	**%**
Mild (0 -7)	2	3.30
Moderate (8-19)	43	71.70
Severe (20-35)	15	25.00
Quality of Life (QoL) due to urinary symptoms	4.00±0.55	

Table (3): Illustrates that most patients (85%) had severe adverse impact on their quality of life and (15%) of patients had moderate negative effect on their quality of life (15%).

BPH-specific Quality of life scale	**No**	**%**
Mild (0-20)	0	0.0
Moderate (20-40)	9	15.0
Severe (40-60)	51	85.0
Mean±SD(range)	**45.46±4.92(36-55)**	

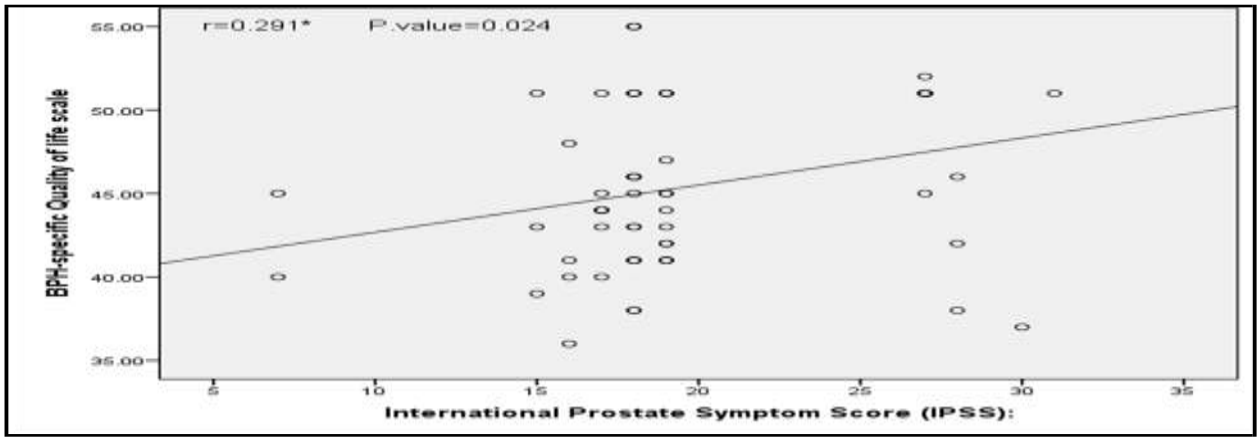

Figure (1): Shows that there was a positive relationship between International Prostate Symptoms Score and quality of life. This means that as the IPSS increases, the quality-of-life decreases, and vice versa.

Discussion

The current study revealed that the patients had an average age of fifty years. This signifies that the older adult age group was the most common age group. Our findings align with a hospital-based study conducted in Port Harcourt, Nigeria, which reported a prevalence rate of twenty five years (Drake et al., 2023). Regarding the patients' living locations, the current study found that over half of them live in urban areas, while less than a third reside in rural areas. This finding aligns with a study by Shaun, et al., (2017) that indicating no notable variation in benign prostatic hyperplasia prevalence based on geographical location.

Typically, there is a strong agreement between the BPH grade and clinical stage, with high stage II BPH often attributed to detrusor under activity as a potential reason for elevated post-void residual urine.

In our examination of 60 patients with male LUTS/BPH, 48 patients were classified as stage II; 7 of them were at grade 3, while only five were at grade I , Therefore, there was disagreement with (Foo, 2017). In relation to LUTS, the latest research showed that fewer than one-third experienced urgency, frequency, and intermittency, which contradicts the findings of Soler et al. (2018) that reported four percent, three percent, and five percent of participants had urgency, frequency, and intermittency. In our research, trouble linked to symptoms in specific groups like storage (frequency, urgency) and voiding (slow stream, hesitancy) was associated with an increased chance of seeking treatment. This data provides evidence that voiding symptoms are not the sole LUTS of BPH, as patients sought treatment regardless of their LUTS subgroup (Przydacz et al., 2021).

The current research demonstrated that more than half of patients experienced severe impacts on their quality of life, while more than twenty percent experienced moderate impacts. These findings are consistent with a study by Asare (2015) on prostate shrinkage and improved quality of life for BPH patients, as well as with Haltbackk's (2015) research on varying levels of quality-of-life interference in their study sample. Mark & Guiseppe (2016) discovered that majority of their quality-of-life samples were significantly affected, supporting this conclusion. In contrast, Abraham et al. (2016) found that roughly two-thirds of their study participants reported a good quality of life, while about two-fifths indicated a poor quality of life. This aligns with findings from Ojewola et al. (2017), who noted that more than two-thirds of participants experienced a diminished quality of life. Research has indicated that the physical, mental, and sexual consequences of LUTS can significantly impact the wellbeing of elderly men. The evidence suggests that BPH can impact the urological, sexual, and mental well-being of elderly males. In his 2018 study, Zhang investigated the frequency of LUTS in BPH patients and how they affect the sexual function and mental well-being of elderly males, suggesting the need for additional research on the impacts of BPH in older men. Research of this kind will offer improved insights into the necessary treatment and management approaches to enhance the quality of life for older men with BPH.

The recent research showed a strong statistical correlation between LUTS in patients and their quality of life, contradicting Chan et al. (2023) who claimed there was no such relationship. It may be related to the influence of LUTS on both overall quality of life and health-related quality of life.

This study found a strong link between LUTS in patients and their quality of life, contradicting Abraham et al (2016) claim that there was no such association. The impact of LUTS on quality of life and health-related quality of life is a possible connection.

In my opinion, BPH has a negative impact on the quality of life and in turn affects the IPPS in patients, which is supported by Jain et al., 2020. Their study revealed a significant difference in QOL and IPSS with a P value = 0.000.

Conclusion

The study concluded that the quality of life among patients with benign prostatic hyperplasia decreases with the increment in the severity of their lower urinary tract symptoms.

Recommendation

1. At outpatient clinics, a brief overview of benign pr ostatic hyperplasia condition is provided in an easy

-to-read Arabic booklet.

2. More research is required to examine the various el ements that contribute to patients' complaints and increased load to identif y appropriate remedies, larger samples will be used in future research.

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