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Impact of Treatment Modalities on the Quality of Life of Men with Benign Prostate Hypertrophy in Tertiary Hospitals in Anambra (2017-2022)

Okuma Augusta Ogonna, Ozims S J, Obasi KO, EBERENDU IF and Nnodim John Kennedy*

Department of Public Health, Faculty of Health Sciences, Imo State University Owerri, Nigeria

***Corresponding author:** Nnodim John Kennedy, Department of Public Health, Faculty of Health Sciences, Imo State University Owerri, Nigeria

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ABSTRACT

Background: Benign Prostate Hypertrophy (BPH) significantly affects the quality of life (QoL) in aging men, causing urinary symptoms and other complications. The effectiveness of various treatment modalities on improving QoL in BPH patients remains a critical area of research. This study investigates the impact of different treatment options on the QoL of men diagnosed with BPH in tertiary hospitals in Anambra State from 2017 to 2022.

Objective: The primary objective of this study is to evaluate the prevalence and risk factors of BPH in men aged 55-75 years and to assess the effectiveness of various treatment modalities on their QoL.

Methodology: This retrospective analysis reviewed the medical records of 100 male patients aged 55-75 years diagnosed with BPH in selected tertiary hospitals in Anambra State between 2017 and 2022. Systematic random sampling was employed to select the study population. Data collected included demographic characteristics, medical history, clinical presentation, diagnostic findings, treatment modalities, and follow-up information. Patient-reported outcome measures (PROMs) were used to evaluate QoL. Statistical analysis involved descriptive statistics, regression analysis, and appropriate tests to compare treatment outcomes.

Findings: The study revealed that the majority of the respondents (42%) were aged 61-65, with 72% employed and 87% married. Common comorbidities included hypertension (48%) and diabetes (22%). Increased urinary frequency (80%) and weak urine stream (70%) were prevalent symptoms. The mean PSA level was 4.8 ng/mL, prostate volume 42.3 mL, and uroflowmetry rate 10.2 mL/s. Treatment modalities included alpha-blockers (55%), TURP surgery (30%), and lifestyle changes (45%). Significant symptom improvement was observed in 65% of patients, and 72% reported improved QoL. Long-term follow-up indicated sustained QoL improvement in 68% of patients.

Conclusion: The finding highlights the significant impact of different treatment modalities on the QoL of men with BPH in tertiary hospitals in Anambra. Effective management of BPH, including appropriate treatment selection and patient follow-up, can lead to substantial improvements in patients' QoL.

Keywords: Benign Prostate Hypertrophy; Quality of Life; Treatment Modalities; Tertiary Hospitals, Anambra State; Patient-Reported Outcome Measures

Abbreviations: BPH: Benign Prostate Hypertrophy; HRQOL: Health-Related Quality of Life; WHO: World Health Organization; LUTS: Lower Urinary Tract Symptoms; TURP: Transurethral Resection of The Prostate; PSA: Prostate-Specific Antigen; PROMS: Patient-Reported Outcome Measures

Introduction

Benign Prostate Hypertrophy (BPH), also known as benign prostatic hyperplasia, is a common condition that affects men as they age. It is characterized by the non-cancerous enlargement of the prostate gland, which can lead to a variety of urinary symptoms. These symptoms include increased frequency and urgency of urination, difficulty starting and maintaining urination, weak urine stream, and the sensation of incomplete bladder emptying. The exact cause of BPH is not fully understood, but it is believed to be related to hormonal changes that occur as men get older. The condition significantly impacts the quality of life, causing discomfort, sleep disturbances, and affecting daily activities (Roehrborn, 2014). In chronic diseases, the quality of life of a patient, which reflects their overall health, is a critical measure for assessing the effectiveness of treatments. Health-related quality of life (HRQOL) refers to the subjective experience of a disease and its treatment on an individual's physical, psychological, and social well-being (Pagel, et al., 2012). The increasing interest in HRQOL outcomes aligns with the growing recognition of the importance of a patient's perception of their health condition following medical interventions. Benign Prostatic Hyperplasia (BPH) presents a substantial financial and health burden worldwide, affecting millions of men, particularly as they age. The World Health Organization (WHO) reports that BPH is one of the most common conditions affecting the prostate gland, with its prevalence increasing with age (Speakman, et al. [1] WHO, 2020).

Globally, the economic impact of BPH is considerable, with annual direct healthcare costs estimated to exceed billions of dollars due to frequent medical visits, diagnostic procedures, and treatments. The economic burden is particularly pronounced in low- and middle-income countries where healthcare infrastructure is less developed and out-of-pocket expenditures are high. BPH also significantly impairs the quality of life and overall health of affected individuals. According to the Global Burden of Disease Study 2019, BPH is a leading cause of lower urinary tract symptoms (LUTS), which include increased urinary frequency, urgency, nocturia, and incomplete bladder emptying. These symptoms can lead to serious complications such as acute urinary retention, recurrent urinary tract infections, and renal insufficiency if not managed appropriately Global Burden of Disease [2]. This growing health burden reveals the critical need for improved awareness, early diagnosis, and effective management strategies to reduce the impact of BPH on individuals and healthcare systems globally. The treatment of BPH includes several modalities ranging from lifestyle changes and medications to surgical interventions. Medications commonly prescribed include alpha-blockers, which relax the muscles of the prostate and bladder neck to ease urination, and 5-alpha-reductase inhibitors, which shrink the prostate (Lokeshwar, et al. [3]). Surgical options, such as transurethral resection of the prostate (TURP), are considered for more severe cases. Each treatment option comes with its own benefits and potential side effects.

For instance, while medications can provide symptom relief, they may also cause dizziness, retrograde ejaculation, and other side effects (Langan, et al. [4]). Surgical interventions, though more definitive, carry risks such as bleeding, infection, and potential sexual dysfunction (Oelke et al., 2014). Studies have shown that the choice of treatment can significantly impact the quality of life for men with BPH. A study conducted by (Roehrborn, et al. [5]) with a sample size of 1,200 men across multiple countries utilized a randomized controlled trial methodology to compare the effectiveness of combination therapy (alpha-blockers and 5-alpha-reductase inhibitors) with monotherapy. The findings indicated that combination therapy provided superior symptom relief and improved quality of life compared to monotherapy. However, it also highlighted an increase in adverse effects, underscoring the need for personalized treatment plans based on patient-specific factors and preferences. In Africa, specifically Nigeria, the burden of BPH is exacerbated by limited access to healthcare resources, socio-economic challenges, and a lack of specialized medical facilities. A study by Ajayi et al. (2017) in Nigeria, which included 500 men from both urban and rural settings, utilized a cross-sectional survey methodology to assess the prevalence and impact of BPH. The study revealed a high prevalence of BPH symptoms, with significant negative impacts on quality of life, particularly in rural areas with limited access to medical care.

The study recommended improving healthcare infrastructure and increasing awareness about BPH and its treatment options to better manage the condition in these settings. Moreover, Ojewola, et al. [6] conducted a descriptive cross-sectional study among 305 community-dwelling men in Southwest Nigeria to assess knowledge, attitudes, and screening practices regarding prostatic diseases. The study found that only 32.5% of respondents were aware of BPH, and a mere 10.2% had undergone screening for prostate cancer. Educational and occupational status significantly influenced knowledge and attitudes, highlighting the need for targeted education and awareness programs. Another study by Agbugui et al. [7] examined the bacteriology of urine specimens from men with symptomatic BPH, finding that 44.7% had bacterial infections, with Escherichia coli being the most common isolate. These findings underscore the importance of considering bacterial infections in the management of BPH and the need for effective antibiotic stewardship. Nneoma Igwe Israel Eshiet, et al. [8] conducted a retrospective descriptive assessment of 102 patients diagnosed with BPH in a tertiary hospital in Eastern Nigeria. Their study aimed to assess the incidence, treatment patterns, and direct cost of managing BPH. They found an incidence rate of 6.7%, with 99% of patients receiving pharmacological interventions, primarily a combination of alpha blockers and 5-alpha reductase inhibitors. The mean number of hospital visits per year was 4.4, with patients incurring significant out-of-pocket expenses, totaling approximately N4,966,080 ($12,810 USD) annually.

This highlights the financial burden of BPH treatment and the need for cost-effective management strategies to prevent complications and reduce costs. A global perspective is provided by Awedew, et al. [9], who conducted a systematic analysis of BPH's burden across 204 countries and territories from 2000 to 2019. Using GBD 2019 analytical and modeling strategies, the study found that the global prevalence of BPH increased from 51.1 million cases in 2000 to 94.0 million in 2019. The age-standardized prevalence remained stable, but the absolute burden increased significantly, especially in low and middle-income countries. The study highlighted the rising strain on health systems due to the increasing prevalence and emphasized the importance of monitoring and planning for future healthcare needs to manage the growing burden of BPH. This paper aims to build on existing research by examining the impact of various treatment modalities on the quality of life of men with BPH in tertiary hospitals across Africa, with a focus on Nigeria. In evaluating patient-reported outcomes and clinical measures, this research seeks to provide insights into optimizing treatment strategies and improving healthcare delivery for BPH patients in resource-limited settings. The findings are expected to inform healthcare policies and enhance patient management practices to better address the needs of men suffering from BPH in these regions.

Methodology

This study is a retrospective analysis of medical records of male patients aged 55-75 years diagnosed with Benign Prostate Hypertrophy (BPH) between 2017 and 2022 in tertiary hospitals in Anambra State. The study aims to determine the prevalence and risk factors of BPH in this population and evaluate the effectiveness of different treatment options on patients' quality of life. The study population comprises male patients aged 55-75 years diagnosed with BPH in the selected tertiary hospitals. A sample size of 100 patients will be obtained using a systematic random sampling technique. Medical records of these patients will be retrieved and reviewed for relevant data. This sampling method ensures equal probability of selection for all eligible patients, enhancing the study's representativeness. Data will be collected through a retrospective review of patient medical records. Information extracted will include demographic characteristics (age, occupation, marital status), medical history (comorbidities, family history of prostate disease), clinical presentation (symptoms, duration), diagnostic findings (prostate-specific antigen [PSA] levels, prostate volume, uroflowmetry), treatment modalities (medication, surgery, lifestyle changes), and follow-up data (symptom improvement, adverse effects, quality of life). To ensure data accuracy and completeness, a standardized data collection form will be developed and used by trained research assistants. Data cleaning and verification processes will be implemented to minimize errors [10-13].

To assess the effectiveness of different treatment options on quality of life, patient-reported outcome measures (PROMs) will be collected. These PROMs will include validated questionnaires to assess symptom severity, urinary function, and overall quality of life. Data analysis will involve descriptive statistics to summarize patient characteristics, prevalence rates, and risk factor distribution. Regression analysis will be used to identify potential risk factors associated with BPH. Comparisons of treatment outcomes will be conducted using appropriate statistical tests. The study will also explore correlations between treatment modalities and changes in quality of life as measured by PROMs. To evaluate the long-term impact of treatment options, follow-up data will be collected through patient interviews or medical record reviews. This information will be used to assess symptom persistence, recurrence, complications, and changes in quality of life over time. This Table 1 presents the demographic characteristics of the study population, including age, occupation, and marital status. The data shows that the majority of the respondents (42%) are in the 61-65 age group, 72% are employed, and 87% are married. Table 2 shows the medical history of the respondents, including the prevalence of comorbidities and family history of prostate disease. Almost half of the patients (48%) have hypertension while 22% have diabetes, and 15% have cardiovascular conditions. Additionally, 38% of the patients have a family history of prostate disease.

Table 1: Demographic Characteristics of Study Participants (N=100).

Variable	Frequency (n=100)	Percentage (%)
Age (years)		
55-60	35	35
61-65	42	42
66-70	18	18
71-75	5	5
Occupation		
Employed	72	72
Retired	28	28
Marital Status		
Married	87	87
Single/Divorced	13	13

Table 2: Clinical Characteristics of Patients with Benign Prostate Hypertrophy (N=100).

Variable	Frequency (n=100)	Percentage (%)
Comorbidities		
Hypertension	48	48
Diabetes	22	22
Cardiovascular	15	15
None	25	25
Family History of Prostate Disease		
Yes	38	38
No	62	62

Table 3 presents the clinical presentation of BPH in the study population, including the most common symptoms and the duration of these symptoms. The data shows that the most prevalent symptoms are increased urinary frequency (80%), weak urine stream (70%), and difficulty starting/stopping urination (65%). The majority of patients (42%) have had these symptoms for 13-24 months. Table 4 presents the diagnostic findings for the study population, including prostate-specific antigen (PSA) levels, prostate volume, and uroflowmetry results. The mean PSA level is 4.8 ng/mL, the mean prostate volume is 42.3 mL, and the mean uroflowmetry rate is 10.2 mL/s. The table above outlines the various treatment modalities employed for the management of BPH in the study population Table 5. The most common medications are alpha-blockers (55%), followed by 5-alpha reductase inhibitors (25%) and combination therapy (15%). Surgical interventions include transurethral resection of the prostate (TURP, 30%) and laser therapy (10%). Additionally, 45% of patients have implemented lifestyle changes as part of their management. Table 6 presents the treatment outcomes, including symptom improvement, adverse effects, and changes in quality of life as measured by patient-reported outcome measures (PROMs). The majority of patients (65%) experienced significant symptom improvement, while 25% had moderate improvement. Adverse effects were reported by 18% of the patients. The PROMs data shows that 72% of the patients reported an improvement in their quality of life.

Table 3: Symptoms and Duration of BPH in Tertiary Hospital Patients (N=100).

Variable	Frequency (n=100)	Percentage (%)
Symptoms		
Increased urinary frequency	80	80
Weak urine stream	70	70
Difficulty starting/stopping	65	65
Nocturia	55	55
Urgency	52	52
Duration of Symptoms (months)		
6-12	35	35
13-24	42	42
>24	23	23

Table 4: Diagnostic Findings of BPH Patients in Tertiary Hospitals (N=100).

Variable	Mean ± SD	Range
PSA (ng/mL)	4.8 ± 2.1	2.0 - 9.5
Prostate Volume (mL)	42.3 ± 8.6	30.0 - 60.0
Uroflowmetry (mL/s)	10.2 ± 3.4	6.0 - 15.0

Table 5: Treatment Modalities for BPH Patients in Tertiary Hospitals (N=100).

Variable	Frequency (n=100)	Percentage (%)
Medication		
Alpha-blockers	55	55
5-alpha reductase inhibitors	25	25
Combination therapy	15	15
Surgery		
TURP	30	30
Laser therapy	10	10
Lifestyle Changes		
Yes	45	45
No	55	55

Table 6: Quality of Life Outcomes (N=100).

Variable	Frequency (n=100)	Percentage (%)
Symptom Improvement		
Significant	65	65
Moderate	25	25
No Improvement	10	10
Adverse Effects		
Yes	18	18
No	82	82
Quality of Life (PROM)		
Improved	72	72
Unchanged	28	28

Table 7 presents the long-term follow-up data, including the persistence of symptoms, recurrence of BPH, the occurrence of complications, and the sustained improvement in quality of life. The data shows that 15% of patients experienced persistent symptoms, 8% had a recurrence of BPH, and 12% developed complications. Additionally, 68% of the patients maintained the improvement in their quality of life over the long-term follow-up period.

Table 7: Long-term Follow-up outcomes of BPH Management in Tertiary Hospital Patients.

Variable	Frequency (n=100)	Percentage (%)
Symptom Persistence		
Yes	15	15
No	85	85
Recurrence		
Yes	8	8
No	92	92

Complications		
Yes	12	12
No	88	88
Quality of Life Improvement Sustained		
Yes	68	68
No	32	32

Discussion

Based on the findings, data reveals that the majority of the respondents are in the 61-65 age group, with a predominance of employed individuals and married men. This aligns with the typical demographics of BPH patients, as the condition is more prevalent in older males. The high prevalence of comorbidities, such as hypertension and diabetes, among the respondents is also noteworthy, as these can influence the management and outcomes of BPH. Additionally, the study findings highlight the importance of family history in the development of prostate disease, with over one-third of the respondents reporting a positive family history. The predominance of older, employed, and married men aligns with the known epidemiology of BPH, which tends to affect an aging male population. The high prevalence of comorbidities like hypertension and diabetes among the respondents is noteworthy, as these underlying conditions can complicate the management of BPH and impact treatment outcomes. This emphasizes the need for comprehensive screening and early intervention strategies, particularly for those with a predisposition to prostate-related conditions. The data on the clinical presentation of BPH, including the most common symptoms and the duration of these symptoms, provides information for healthcare professionals in tailoring their treatment approaches to address the specific needs of this patient population. The diagnostic findings, such as PSA levels, prostate volume, and uroflowmetry results, further contribute to the understanding of the clinical characteristics of the study participants, which can inform the selection of appropriate treatment modalities.

A significant finding is the role of family history in the development of prostate disease. Over a third of the participants reported a positive family history, underscoring the importance of genetic and hereditary factors in BPH. This emphasizes the need for enhanced screening and early intervention, especially for men with a predisposition to prostate-related conditions. The detailed data on clinical presentation, including symptom types and duration, can guide healthcare providers in tailoring treatment approaches to better address the specific needs of this patient population. Furthermore, the diagnostic test results, such as PSA levels and uroflowmetry findings, provide valuable clinical context that can inform the selection of appropriate treatment modalities for individual patients.

Conclusion

The purpose of the study was to investigate the impact of treatment modalities on the quality of life of men with benign prostate hypertrophy (BPH) in tertiary hospitals in Anambra, Nigeria. The findings from this study provide a comprehensive understanding of the demographic and clinical characteristics of men with benign prostate hypertrophy (BPH) seeking treatment in tertiary hospitals in Anambra, Nigeria. The data highlights the preponderance of older, employed, and married men among the study population, aligning with the typical epidemiology of BPH. The high prevalence of comorbidities, such as hypertension and diabetes, among the respondents underscores the need for a holistic approach to BPH management that takes into account the impact of underlying health conditions on treatment outcomes. A notable implication of the study findings is the importance of family history in the development of prostate disease. The significant proportion of participants reporting a positive family history emphasizes the role of genetic and hereditary factors in BPH, warranting enhanced screening and early intervention strategies, particularly for high-risk individuals. Furthermore, the detailed data on clinical presentation and diagnostic test results can inform the selection of appropriate treatment modalities, enabling healthcare providers to approach to the specific needs of each patient and ultimately improving the quality of life for men affected by this condition in the study setting and beyond.

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Nnodim John Kennedy. Biomed J Sci & Tech Res

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