

**Research Article****A prospective study on prevalence and treatment pattern of benign prostate hyperplasia at a tertiary care hospital**Athif Noor M.<sup>1\*</sup>, T. Vithya<sup>1</sup>, Shankar Prasad<sup>2</sup>, V. Chandrashekar Roa<sup>3</sup>, Manjunath S<sup>3\*</sup><sup>1</sup>Department of Pharmacy Practice, Al-Ameen College of Pharmacy, Bengaluru, India<sup>2</sup>Medical Director, St. Philomena's Hospital, Bengaluru, India<sup>3</sup>Department of Urology, St Philomena's Hospital, Bengaluru, India

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**Abstract**

The most prevalent urological issue among elderly men is benign prostatic hyperplasia (BPH), which is becoming more and more widespread globally. To assess LUTS owing to BPH, the international Prostate symptom score (IPSS) is a helpful and validate questionnaire. Treatment for BPH is based on the severity of symptoms and seeks to reduce progression risk, enhance quality of life, and improve symptoms. **Objective:** To study the prevalence and treatment pattern of BPH. **Methodology:** A hospital based prospective observational study was carried out over a period of nine months at the urology department of St. Philomena's Hospital, Bangalore. **Results:** A total of 80 patients were enrolled and majority were in the age group of 60-70 years. According to IPSS scoring, maximum patients had Mild symptoms. The incidence rate of LUTS among BPH patients was found to 100%. Majority of the patients were treated with combination of tamsulosin and dutasteride followed by tamsulosin alone. 2.5% patients developed adverse drug reactions and which was found to be Erectile dysfunction induced by tamsulosin and alfuzosin. It was found that the relationship between age and QoL and IPSS is statistically insignificant. **Conclusion:** Here by I conclude the study by stating that BPH was managed with combination of tamsulosin and dutasteride followed by tamsulosin alone. Majority of patients quality of life was found to be dissatisfied. So, a counselling from clinical pharmacist would help them to improve their quality of life.

**Keywords:** Benign prostate hyperplasia, Lower urinary tract symptoms, International prostate symptom score

**Introduction**

The prostate gland enlargement seen in males with BPH is not cancerous. As it expands, the gland may constrict the urethra. The Bladder wall gets thicker. The bladder may become weaker and less able to empty completely with time. The bladder holds onto the urine. Many of the LUTS are caused by these issues (Kishorebabuet al., 2019).

The estimated incidence case of BPH worldwide increased from 5.48 million (95%) in 1990 to 11.26 million (95%) in 2019 (Xu et al., 2021). By the age of 60 years, 50% of men in India have BPH (Suresh,2022).

The development of BPH is also influenced by modifiable and non-modifiable risk factors. These consists of genetic factors,

obesity, hypertension and metabolic syndrome (Chughtai et al., 2016). Age significantly increases the prevalence of BPH. Age is a risk factor for BPH, as evidenced by a multitude of observational studies conducted in Europe, US, and Asia (Patel and Parsons, 2014). BPH risk has been associated with obesity. Since that one component of metabolic syndrome is obesity, the precise cause is unknown but most likely multifactorial. Systemic inflammatory response and elevated estrogen levels are two suggested mechanisms (Ng et al., 2024).

To evaluate LUTS secondary to BPH, the IPSS is a valuable and validate questionnaire. As a result, urologists now find it to be a very helpful tool in their daily work for evaluating and monitoring patients with LUTS. It is also beneficial for determining how severe BPH symptoms are (Taneja et al., 2017).

Patients with moderate to severe LUTS/BPH may benefit from treatment with alpha blockers such as alfuzosin, doxazosin, silodosin, tamsulosin, terazosin. Side effects

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includes erectile dysfunction, dizziness, weakness and drop in blood pressure. Patient suffering from LUTS and BPH should consider taking 5 mg of tadalafil once daily, regardless of the presence of concurrent erectile dysfunction. Patients who experience gross haematuria due to BPH, refractory urinary tract infection or renal insufficiency as a result of BPH are advised to have surgery (Sandhu et al., 2023).

### Materials and methods

**Study design:** This was a hospital based prospective observational study.

**Study site:** The study was carried out at the Urology department of St. Philomena's Hospital, Bangalore.

**Study period:** The study was conducted for a period of nine months.

**Sample size:** 80 samples

**Study criteria:** study was carried out by considering the following criteria's:

#### Inclusion criteria:

Men above 40 years of age who were diagnosed with BPH.

#### Exclusion criteria:

- Men with LUTS who did have history of BPH.
- Patients who were not willing to participate in the study.

#### Sources of data:

- Patients case sheets.
- Interview with patients/attender.
- Interview with consultant/resident.

### Study procedure:

The research student visited the Urology department on a daily basis and enrolled the patients as mentioned in inclusion criteria. All the details such as demographic data, family, social, medical, medication history, treatment pattern was collected. IPSS tool was used to assess the severity of LUTS and the same was conveyed to the urologist. The management of LUTS was recorded. All the data were collected, documented, and analyzed.

### Statistical Analysis:

Descriptive statistics was used. P value < 0.05 was considered statistically significant. RStudio Desktop Version 2023.03.0+ 386 was used for statistical analysis.

**Ethical Approval:** Approved by Institutional Ethical Committee (IEC) of St. Philomena's Hospital, Bangalore with IEC Ref. No. IEC/2023/256/Al-Am on 28<sup>th</sup> April, 2023.

**Informed consent:** Informed consent was obtained from all patients included in the study.

### Results and discussion

A total number of 80 patients who met the inclusion criteria at were included in the study. Out of 390 patients visited the OPD, 80 patients were diagnosed with BPH. Among 80 patients included, 38 patients (47.5%) were found to be in the age group of 61- 70 years followed by 19 patients (23.75%) were in the age group of 71-80 years, 13 patients (16.25%) were in the age group of 51-60 years, 6 patients (7.5%) were in the group of above 80 years. This result was similar to the study carried out by (Nagarathnam and Latheef, 2017).

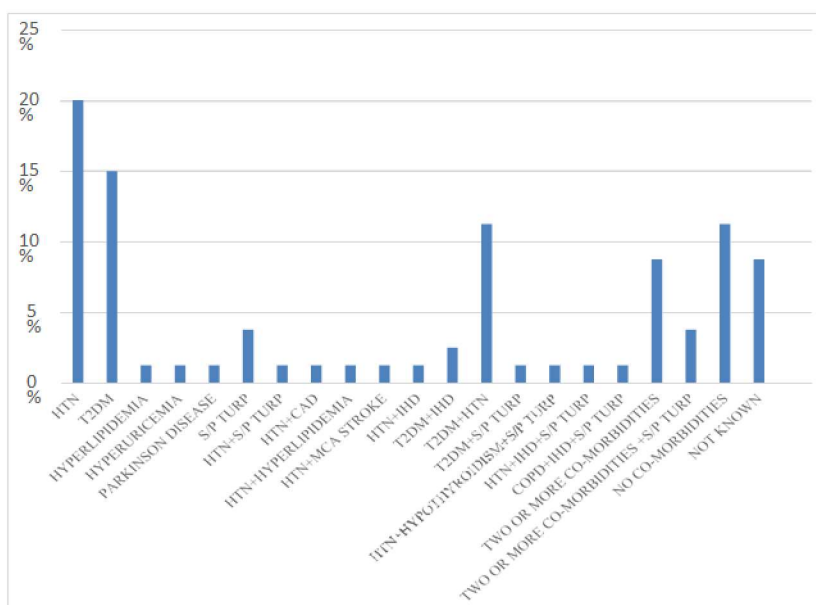
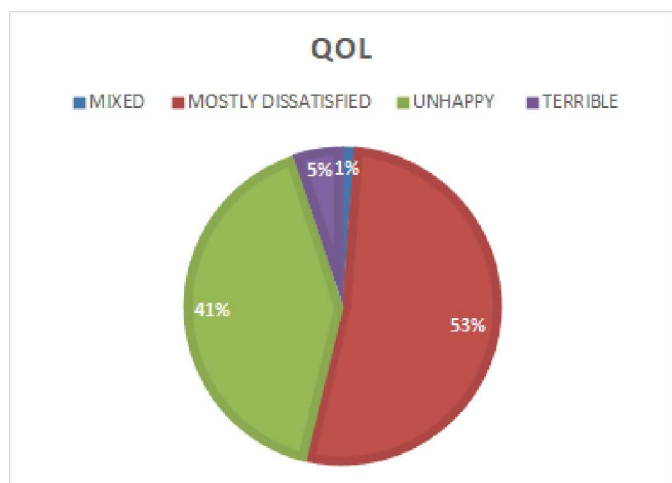


Figure 1. Distribution of patients based on past medical history

According to their BMI of all 80 patients, 34 patients (42.5%) had normal weight, 37 patients (46.25%) were overweight, 8 patients (10%) were obese, 1 patient (1.25%) were underweight. This result was similar to the study carried out by (Li BH et al., 2019). The social history of 80 patients in the study showed that 62 patients did not have any social history, 7 patients were alcoholic, 6 patients were quit those habits and 5 patients were smokers. In the study no patients have any family history of BPH.



**Figure 2.** Distribution of patients based on quality of life due to urinary symptoms

Out of 80 patients, 64 patients (80%) were with comorbidities, 9 patients (11.25%) were without comorbidities, 7 patients (8.75%) comorbidities were not known. The most observed comorbid conditions among the patients were 16 instances of hypertension, 12 instances of type 2 diabetes mellitus, 9 instances of Type 2 diabetes mellitus + hypertension, 2 instances of type 2 diabetes mellitus + ischemic heart disease shown in **Figure 1**, which was similar to the results of (Yasser et al., 2017).

The major complaints received were LUTS. One of our objectives was to analyze incidence of LUTS and it was observed that all 80 patients (100%) had LUTS.

Out of 80 patients, 51 patients were newly diagnosed BPH, 29 patients were already known case of BPH. In that 39 patients BPH stages was not known, 24 patients were Grade 2 BPH, 17 patients were Grade 1 BPH.

Correlation BPH and BMI of 80 patients was observed, out of 8 obese patients, 2 patients had grade 2 BPH, 3 patients had grade 1 BPH and unfortunately 3 patients grades were not known. Out of 37 overweight patients, 10 patients had grade 2 BPH, 6 patients had grade 1 BPH and 21 patients grade level were not known and rest 34 patients had normal weight and 1 patient were under weight.

**Table 1:** Distribution of age based on IPSS

S. No	Age (Years)	Mild	Moderate	Severe	No of patients	Percentage (%)
1	40-50	4	2		6	7.5%
2	51-60	7	6		13	16.25%
3	61-70	29	9		38	47.5%
4	71-80	14	3		19	23.75%
5	Above 80	3	1	2	4	5%
Total					80	100%

**Table 2:** Distribution of age based on QoL

S. No	Age (Years)	Mixed	Mostly dissatisfied	Unhappy	Terrible	No of patients	Percentage (%)
1	40-50	1	2	3		6	7.5%
2	51-60		7	6		13	16.25%
3	61-70		19	16	3	38	47.5%
4	71-80		11	7	1	19	23.75%
5	Above 80		3	1		4	
Total						80	100%

IPSS of 80 patients was carried out, 57 patients had Mild symptoms, followed by 21 patients had moderate symptoms and 2 patients had severe symptoms. This result was found to be different from the study conducted by (Almarkhan et al., 2018). When the quality of life of patients was evaluated, out of 80 patients, 42 patients were mostly dissatisfied, 33 patients were unhappy, 4 patients felt terrible shown in **Figure 2**.

Correlation age of BPH patients and IPSS was observed, out of 38 patients, 29 patients aged between 61-70 years had mild symptoms, 9 patients had moderate symptoms shown in **Table 1**. when we correlate age of BPH patients and QoL, out of 38 patients, 19 patients aged between 61-70 years were mostly dissatisfied, 16 patients were unhappy and 3 patients felt terrible shown in **Table 2**.

Uroflowmetry results showed 37 patients did not have results followed by 17 patients had Mild obstructive, 15 patients had good flow, 7 patients had moderate obstructive, 4 patients had severe obstruction. When USG prostate size was evaluated, 30 patients had 25-50 in size followed by 19 patients had >50 in size, 13 patients had < 25 in size, 18 were unknown. PSA test was carried out only in 23 patients and rest 57 patients PSA test was not carried out.

Among 80 patients, majority of patients prescribed with alpha blockers+ 5 alpha reductase inhibitors followed by alpha blockers alone shown in **table 3** which was similar to the study conducted by (Lee and Kim, 2022). Out of 80 patients who visited urology OPD, 2 patients developed adverse drug

**Table 3.** Distribution of patients based on prescribing pattern of drugs

S. No	Drug name	No of atients	Percentage (%)
1	Tamsulosin	12	15%
2	Silodosin	5	6.25%
3	Alfuzosin	5	6.25%
4	Finasteride	1	1.25%
5	Tamsulosin+ Dutasteride	26	32.5%
6	Silodosin + Dutasteride	6	7.5%
7	Tamsulosin + Mirabegron	2	2.5%
8	Tamsulosin + Tadalafil	1	1.25%
9	Alfuzosin + Tadalafil	1	1.25%
10	Tadalafil + Finasteride	1	1.25%
11	Silodosin + Mirabegron	3	3.75%
12	Tamsulosin +Mupirocin Ointment	1	1.25%
13	Alfuzosin + Mirabegron	1	1.25%
14	Silodosin + Solifenacin	1	1.25%
15	Alfuzosin + Febuxostat	1	1.25%
16	Tamsulosin + Dutasteride+Betanechol	1	1.25%
17	Silodosin + Dutasteride +Mefenemic Acid &Dicyclomine Hcl	1	1.25%
18	Silodosin + Dutasteride+Dicyclomine Hcl &Paracetamol	1	1.25%
19	Tamsulosin + Solifenacin+Disodium HydrogenCitrate Syrup	1	1.25%
20	Silodosin + Dutasteride+Darifenacin +Mirabegron	1	1.25%
21	Tamsulosin + Dutasteride+ Cefixime	3	3.75%
22	Silodosin + Dutasteride + Mirabegron + Amoxycillin & Potassium Clavulanta	1	1.25%
23	Silodosin + Dutasteride +Levofloxacin	1	1.25%
24	Tamsulosin + Cefixime + Disodim Hydrogen Citrate Syrup	1	1.25%
25	Tamsulosin + Dutasteride +Cefixime + MupirocinOintment	1	1.25%
26	Tamsulosin + Dutasteride+ Doxycycline + Cefixime+Flavoxate	1	1.25%
Total		80	100%

**Table 4:** Distribution based on ADR reported

S. No	Drug	Adverse reaction	Fate ofdrug	No of ADR	Percentage
1	Tamsulosin	Erectile dysfunction	Continued	1	50%
2	Alfuzosin	Erectile dysfunction	Continued	1	50%
Total				2	100%

**Table 5:** Comparison of IPSS according to age categories

Age categories	IPSS			P value
	Mild	Moderate	Severe	
40-50	4 (66.7%)	2 (33.3%)	0 (0%)	0.257
51-60	7 (53.8%)	6 (46.2%)	0 (0%)	
61-70	29 (76.3%)	9 (23.7%)	0 (0%)	
71-80	14 (73.7%)	3 (15.8%)	2 (10.5%)	
>80	3 (75%)	1 (25%)	0 (0%)	

**Table 6:** Comparison of QOL according to age categories

Age categories	QOL				P value
	Mixed	Mostly Dissatisfied	Unhappy	Terrible	
40-50	1 (16.7%)	2 (33.3%)	3 (50%)	0 (0%)	0.209
51-60	0 (0%)	7 (53.8%)	6 (46.2%)	0 (0%)	
61-70	0 (0%)	19 (50%)	16 (42.1%)	3 (7.9%)	
71-80	0 (0%)	11 (57.9%)	7 (36.8%)	1 (5.3%)	
>80	0 (0%)	3 (75%)	1 (25%)	0 (0%)	

reaction among which one patient developed erectile dysfunction after administering tamsulosin and another patient developed erectile dysfunction after administering alfuzosin shown in **table 4**.

Statistical analysis was done to compare IPSS with age categories, it was found to be statistically insignificant ( $p > 0.05$ ) shown in **table 5**. When age was compared with Quality of life of patients, it was found to be statistically insignificant ( $p > 0.05$ ) shown in **table 6**.

### Conclusion

During the study period of nine months a total number of 80 patients were enrolled and majority were in the age group of 60-70 years. It was observed that majority of patients were overweight and had normal weight. According to IPSS scoring, maximum patients had mild symptoms. The incidence of LUTS among BPH patients was found to be 100%. Majority of patients were treated with tamsulosin and dutasteride followed by tamsulosin alone. 2.5% of patients developed adverse drug reactions and which was found to be erectile dysfunction induced by tamsulosin and alfuzosin. It was observed that there is statistical significance between age and IPSS and QoL.

Hereby I conclude the study by stating that BPH was managed with combination of tamsulosin and dutasteride followed by tamsulosin alone. Majority of patients quality of life was found to be dissatisfied. So, a counselling from clinical pharmacist would help them to improve their quality of life.

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