

Assessing quality of life before and after transurethral resection of the prostate in benign prostatic hyperplasia patients

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Abstract

Objective: To compare quality of life scores before and after transurethral resection of the prostate in patients with benign prostatic hyperplasia.

Method: The prospective, observational study was conducted at the Urology Department of the Sindh Institute of Urology and Transplantation, Karachi, from September 24, 2021, to March 30, 2022, and comprised consecutive patients who were eligible to undergo transurethral resection of the prostate for benign prostatic hyperplasia. Prior to undergoing definitive surgical therapy, all the patients were evaluated using standardised questionnaires, specifically the International Prostate Symptom Score and a disease-specific quality of life score. The patients were monitored using identical questionnaires for follow-up purposes. Data was analysed using SPSS 22.

Results: There were 50 male patients with mean age 65.08 ± 8.33 years (range: 51-82 years). The International Prostate Symptom Score decreased significantly from 25.2 ± 3.76 before the surgery to 8.52 ± 1.67 after the surgery ($p < 0.05$). The mean score for quality of life before and after the surgery was 4.62 ± 0.67 and 1.74 ± 0.78 , respectively ($p < 0.05$).

Conclusion: Transurethral resection of the prostate led to a substantial improvement in the quality of life related to urinary symptoms following benign prostatic hyperplasia treatment.

Key Words: Benign prostatic hyperplasia, international prostate symptom score, Quality of life score, Transurethral resection of the prostate.

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Introduction

Benign prostatic hyperplasia (BPH) is a disease that impacts elderly men globally.^{1,2} Transurethral resection of the prostate (TURP) is widely regarded as the most effective surgical treatment for prostate conditions.³⁻⁵ However, it is important to focus on specific issues that may occur after surgery.^{6,7} The International Prostate Symptom Score (IPSS)⁸ is a tool that can be utilised to evaluate lower urinary tract issues in elderly males, with BPH being the main underlying factor. There are two primary classifications of symptoms associated with BPH that have a significant influence on a patient's quality of life (QOL): irritative symptoms and obstructive symptoms. Frequent urination, dysuria and urgency are instances of bothersome symptoms, while hesitancy, decreased strength and velocity of the urine stream, sensations of residual urine after urination, post-urination dribbling, and intermittent flow are examples of obstructive symptoms. BPH significantly diminishes one's QOL, but, except in exceptional cases, it does not pose a substantial

risk to one's physical wellbeing.

The main factor used to decide whether to treat BPH and select appropriate treatment choices for most people with mild to severe symptoms is QOL impairment.⁹⁻¹⁵

The objective of treating individuals with clinical evidence of BPH is to alleviate or reduce bothersome lower urinary tract symptoms (LUTS).¹⁶ TURP remains the most effective method for treating symptomatic bladder outlet obstruction (BOO) caused by BPH, despite notable advancements in treatment options in the past decade. In a study¹⁷, it was shown that patients who underwent TURP for BPH experienced substantial QOL enhancements ($p < 0.001$). Additionally, IPSS improved from 21 pre-operatively to 7 postoperatively ($p < 0.001$).

The current study was planned to compare QOL scores before and after TURP in BPH patients.

Patents and Methods

The prospective, observational study was conducted at the Urology Department of the Sindh Institute of Urology and Transplantation (SIUT), Karachi, from September 24, 2021, to March 30, 2022. After approval from the institutional ethics review board, the samples size was calculated in line with a study¹¹ which reported QOL score 5.2 ± 0.6 before the procedure and 1.5 ± 0.7 after the procedure. The power of the study was kept at 80% and

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the significance level at 5%. The sample was raised using consecutive non-probability sampling technique. Those included were male patients eligible to undergo TURP for BPH diagnosed by trans-rectal ultrasonography (TRUS). The exclusion criteria comprised urethral stricture, neurogenic bladder, bladder tumour, prostate cancer, bladder stone, and prior prostate surgery. The study adhered rigorously to the exclusion criteria in order to prevent bias.

Data was collected using a proforma after taking written informed consent from each patient. The data included age, height, weight, body mass index (BMI)¹⁸, prostate volume, IPSS8, duration of symptoms and socioeconomic status (SES). The QOL score was calculated using a World Health Organisation (WHO) tool.¹⁹

Baseline IPSS and QOL scores were collected before the initiation of the TURP procedure which was carried out by skilled surgeons having a minimum of 5 years of experience after completing their specialised training. One month post-TURP, IPSS and QOL scores were measured again.

Data was analysed using SPSS 22. Data was expressed as mean $\pm$ standard deviation or as frequencies and percentages, as appropriate. IPSS and QOL scores were categorised based on study variables. After the stratification, chi-square test was used to examine effect modification. A paired 't' test was utilised to ascertain the average alteration in IPSS and QOL prior to and following TURP. $P < 0.05$ was considered statistical significance.

Results

There were 50 male patients with mean age 65.08 ± 8.33 years (range: 51-82 years), with 35(70%) aged >60 years and 15(30%) aged <60 years. The mean BMI was

Table-1: Baseline and post-operative IPSS and QOL scores.

Descriptive Statistics	Mean ($\pm$ SD)	Range (min-max)
reoperative IPSS Score	25.2 ($\pm$ 3.76)	(17-32)
Post-operative IPSS Score	8.52 ($\pm$ 1.67)	(6-12)
Descriptive Statistics	Mean ($\pm$ SD)	Range (min-max)
Preoperative QOL Score	4.62 ($\pm$ 0.67)	(3-6)
Postoperative QOL Score	1.74 ($\pm$ 0.78)	(0-3)

IPSS: International Prostate Symptom Score, QOL: Quality of life, SD: Standard deviation.

Table-2: Baseline and post-operative mean difference of IPSS and QOL scores..

IPSS Score	Preoperative IPSS Score	Postoperative IPSS Score	Mean Difference	P-value
	25.2 ($\pm$ 3.76)	8.52 ($\pm$ 1.67)	16.68	<0.001
QOL Score	Preoperative QOL Score	Postoperative QOL Score	Mean Difference	P-value
	4.62 ($\pm$ 0.67)	1.74 ($\pm$ 0.78)	4.88	<0.001

$22.31 \pm 3.16 \text{ kg/m}^2$ (range: $17.11\text{-}30.67 \text{ kg/m}^2$), with 32(64%) having a healthy BMI, followed by 12(24%) overweight, 4(8%) underweight and 2(4%) obese. The mean duration of hospitalisation was 2.24 ± 1.15 days, with 31(62%) patients having a hospital stay >2 days. The mean prostate volume was $46.39 \pm 11.66 \text{ cm}^3$, with 27(54%) patients having it $<45 \text{ cm}^3$. The mean duration of symptoms was 25.07 ± 6.09 months, with 30(60%) individuals having symptoms lasting >24 months. The IPSS decreased significantly from 25.2 ± 3.76 before the surgery to 8.52 ± 1.67 after the surgery ($p < 0.05$). The mean QOL score before and after the surgery was 4.62 ± 0.67 and 1.74 ± 0.78 , respectively ($p < 0.05$) (Tables 1-2).

Significant improvement was noted for IPSs and QOL scores across all demographic variables, except QOL score for obese patients (Table 3).

Table-3: Impact of demographic, clinical, and socioeconomic factors on IPSS and QOL baseline and post-treatment scores.

Length of Hospital Stay		Preoperative IPSS Score	Post-operative IPSS Score	Mean Difference	P-value
<2 Days	IPSS Score	25.2 ($\pm$ 4.1)	8.4 ($\pm$ 1.7)	16.8	<0.001
	QOL Score	4.7 ($\pm$ 0.7)	1.8 ($\pm$ 0.8)	2.9	<0.001
≥ 2 Days	IPSS Score	25.2 ($\pm$ 3.6)	8.6 ($\pm$ 1.7)	16.6	<0.001
	QOL Score	4.5 ($\pm$ 0.9)	1.7 ($\pm$ 0.8)	2.9	<0.001
Age Groups		Pre-operative IPSS Score	Postoperative IPSS Score	Mean- Difference	P-value
<60 Years	IPSS Score	23.6667 ($\pm$ 3.51866)	7.4667 ($\pm$ 1.24595)	16.2	<0.001
	QOL Score	4.6667 ($\pm$ 0.72375)	1.3333 ($\pm$ 0.72375)	3.33	<0.001

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>= 60 Years		Pre-operative IPSS Score	Postoperative IPSS Score	Mean Difference	P-value
	IPSS Score	25.8571 (± 3.71913)	8.9714 (± 1.63574)	16.88	<0.001
		Preoperative QOL Score	Postoperative QOL Score	Mean Difference	P-value
	QOL Score	4.6 (± 0.81168)	1.9143 (± 0.74247)	2.68	<0.001
BMI		Preoperative IPSS Score	Postoperative IPSS Score	Mean Difference	P-value
Below 18 (Underweight)	IPSS Score	23.8 (± 4.3)	7.8 (± 1.3)	16	0.002
	QOL Score	5 (± 0.8)	1.5 (± 1.3)	3.5	0.027
18.5 – 24 (Normal or Healthy Weight)	IPSS Score	24.9 (± 3.9)	8.5 (± 1.7)	16.375	<0.001
	QOL Score	4.6 (± 0.8)	1.8 (± 0.7)	2.875	<0.001
25.0 – 29 (Overweight)	IPSS Score	26 (± 3.4)	8.7 (± 1.8)	17.3333	<0.001
	QOL Score	4.5 (± 0.9)	1.8 (± 0.9)	2.75	<0.001
30.0 and Above	IPSS Score	28 (± 1.4)	9 (± 0)	19	0.033
	QOL Score	4.5 (± 0.7)	2 (± 0)	2.5	0.126
Duration of Symptoms		Preoperative IPSS Score	Postoperative IPSS Score	Mean Difference	P-value
<24 months	IPSS Score	26.6 (± 3.2)	9 (± 1.8)	17.7	<0.001*
	QOL Score	4.9 (± 0.6)	2 (± 0.7)	3.0	<0.001*
>= 24 months	IPSS Score	24.3 (± 3.9)	8.2 (± 1.5)	16.0	<0.001*
	QOL Score	4.4 (± 0.8)	1.6 (± 0.8)	2.8	<0.001*
Socio Economic Status		Preoperative IPSS Score	Postoperative IPSS Score	Mean Difference	P-value
Low Income (<= 25000 PER MONTH)	IPSS Score	25.5 (± 4.4)	7.8 (± 1.9)	17.7	<0.001
	QOL Score	4.8 (± 0.4)	1.9 (± 0.7)	2.9	<0.001
Middle Income (25000-50000 PER MONTH)	IPSS Score	25.5 (± 3.5)	8.9 (± 1.6)	16.6	<0.001
	QOL Score	4.6 (± 0.8)	1.7 (± 0.8)	2.9	<0.001
High Income (>=50000 PER MONTH)	IPSS Score	23.8 (± 4.1)	8 (± 1.2)	15.8	<0.001
	QOL Score	4.5 (± 0.9)	1.6 (± 0.9)	2.9	<0.001

IPSS: International Prostate Symptom Score, QOL: Quality of life.

Discussion

The symptoms experienced by the current participants decreased by 66.7%, as evidenced by the mean reduction of 15 points in IPSS. Upon further examination, most men (with IPSS ranging 7-9) perceived their urinary symptoms as mild. The study collected paired data for 50 male individuals, and the IPSS decreased from 25.2 ± 3.76 before the operation to 8.52 ± 1.67 after the operation. The QOL score experienced a significant rise to 1.5 ($p < 0.001$). There was a significant difference (< 0.001) in the mean QOL

score before and after the surgery. Conversely, most patients indicated experiencing notable symptoms during the preoperative assessment (IPSS 20-35). The improvement in IPSS was consistent with other studies that have reported scores ranging 6-7.7 during follow-up.²⁰⁻²⁴

Chalise, P. R. et al.²⁵ in a 2007 study revealed that the mean age and duration of symptoms were 68.3 years and 26.7 months, respectively. The mean volume of the prostate was 46.1 cm.³ The preoperative QOL and IPSS

were 5.2 and 23.4, respectively, with 56.6% of the score attributed to obstructive symptoms. During the three-month follow-up, the QOL ratings rose to 1.5, while the average IPSS declined to 7.9. The current study yielded almost identical findings.

After undergoing TURP, preoperative IPSS can be used as an indicator of the postoperative result. The current study revealed that persons with BPH who underwent TURP reported significant enhancements in QOL and urinary symptoms. Individuals exhibiting the most severe symptoms observed the most significant enhancements. Significant enhancements were observed in both QOL scores and IPSS.

The current study has limitations owing to a small sample size. Besides, a brief postoperative time may not adequately represent the enduring QOL alterations or the emergence of problems that occur later in life. Finally, QOL assessment was fundamentally subjective, and could have been impacted by the psychological emotions and expectations of patients, which may have affected the results.

Conclusion

QOL due to urinary symptoms significantly improved after BPH treatment with TURP. The improvement was graded as a good outcome and strongly related to preoperative symptom severity.

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Conflict of Interest: None.

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References

- Kaplan SA. Benign prostatic hyperplasia. *J Urol* 2023;210:196–8. doi: 10.1097/JU.0000000000003470.
- Gentile F, La Civita E, Della Ventura B, Ferro M, Cennamo M, Bruzzese D, et al. A combinatorial neural network analysis reveals a synergistic behaviour of multiparametric magnetic resonance and prostate health index in the identification of clinically significant prostate cancer. *Clin Genitourin Cancer* 2022;20:e406–10. doi: 10.1016/j.clgc.2022.04.013.
- Wasserbauer R, Pacik D, Varga G, Vit V, Jarkovsky J, Fedorko M. Short-term outcomes of water vapor therapy (Rezüm) for BPH/LUTS in the first Czech cohort. *Urol J* 2021;18:699–702. doi: 10.22037/uj.v18i.6843.
- Sciacqua LV, Vanzulli A, Di Meo R, Pellegrino G, Lavorato R, Vitale G, et al. Minimally invasive treatment in benign prostatic hyperplasia (BPH). *Technol Cancer Res Treat* 2023;22:15330338231155000. doi: 10.1177/15330338231155000.
- Cornu JN, Zantek P, Burt G, Martin C, Martin A, Springate C, et al. Minimally invasive treatments for benign prostatic obstruction: a systematic review and network meta-analysis. *Eur Urol* 2023;83:534–47. doi: 10.1016/j.eururo.2023.03.004.
- Yang CY, Chen GM, Wu YX, Zhang WJ, Wang J, Chen PP, et al. Clinical efficacy and complications of transurethral resection of the prostate versus plasmakinetic enucleation of the prostate. *Eur J Med Res* 2023;28:83. doi: 10.1186/s40001-023-01139-4.
- Ortner G, Pang KH, Yuan Y, Herrmann TRW, Biyani CS, Tokas T. Peri- and post-operative outcomes, complications, and functional results amongst different modifications of endoscopic enucleation of the prostate (EEP): a systematic review and meta-analysis. *World J Urol* 2023;41:969–80. doi: 10.1007/s00345-023-04287-6.
- QxMD Software Inc. International Prostate Symptom Score (IPSS): Assess severity of symptoms in benign prostatic hypertrophy. [Online] 2020 [Cited 2024 September 07]. Available from URL: <https://reference.medscape.com/calculator/338/international-prostate-symptom-score-ipss>.
- Girman CJ, Jacobsen SJ, Tsukamoto T, Richard F, Garraway WM, Sagnier PP, et al. Health-related quality of life associated with lower urinary tract symptoms in four countries. *Urology* 1998;51:428–36. doi: 10.1016/S0090-4295(97)00603-4.
- Trueman P, Hood SC, Nayak US, Mrazek MF. Prevalence of lower urinary tract symptoms and self-reported diagnosed 'benign prostatic hyperplasia', and their effect on quality of life in a community-based survey of men in the UK. *BJU Int* 1999;83:410–5. doi: 10.1046/j.1464-410x.1999.00914.x.
- Bertaccini A, Vassallo F, Martino F, Luzzi L, Rocca Rossetti S, Di Silverio F, et al. Symptoms, bothersomeness and quality of life in patients with LUTS suggestive of BPH. *Eur Urol* 2001;40(Suppl 1):13–8. doi: 10.1159/000052374.
- Salinas-Sánchez AS, Hernández-Millán I, Lorenzo-Romero JG, Segura-Martin M, Fernández-Olano C, Virseda-Rodriguez JA. Quality of life of patients on the waiting list for benign prostatic hyperplasia surgery. *Qual Life Res* 2001;10:543–53. doi: 10.1023/A:1013149207032.
- Quek KF, Loh CS, Low WY, Razack AH. Quality of life assessment before and after transurethral resection of the prostate in patients with lower urinary tract symptoms. *World J Urol* 2001;19:358–64. doi: 10.1007/s003450100218.
- Kang YJ, Kim KH, Seo Y, Lee KS. Effect of transurethral resection of the prostate on storage symptoms in patients with benign prostatic hyperplasia of less than 30 ml. *World J Mens Health* 2013;31:64–9. doi: 10.5534/wjmh.2013.31.1.64.
- Welch G, Weinger K, Barry MJ. Quality-of-life impact of lower urinary tract symptom severity: results from the Health Professionals Follow-up Study. *Urology* 2002;59:245–50. doi: 10.1016/S0090-4295(01)01486-0.
- Barry MJ. Evaluation of symptoms and quality of life in men with benign prostatic hyperplasia. *Urology* 2001;58(Suppl 1):25–32. doi: 10.1016/S0090-4295(01)01252-3.
- Kallenberg F, Hossack TA, Woo HH. Long-term follow-up after electrocautery transurethral resection of the prostate for benign prostatic hyperplasia. *Adv Urol* 2011;2011:359478. doi: 10.1155/2011/359478.
- World Health Organization (WHO). International Association for the Study of Obesity (IASO) and International Obesity Task Force (IOTF). The Asia-Pacific Perspective: Redefining Obesity and its Treatment. Geneva, Switzerland: WHO Press, 2000; pp 378–420.
- World Health Organization (WHO). The World Health Organization Quality of Life (WHOQOL). [Online] 2012 [Cited 2024 September 07]. Available from URL: <https://www.who.int/tools/whoqol>.
- Wasserman NF. Benign prostatic hyperplasia: a review and ultrasound classification. *Radiol Clin North Am* 2006;44:689–710. doi: 10.1016/j.rcl.2006.06.001.
- Shingleton WB, Farabaugh P, May W. Three-year follow-up of laser

- prostatectomy versus transurethral resection of the prostate in men with benign prostatic hyperplasia. *Urology* 2002;60:305–8. doi: 10.1016/S0090-4295(02)01733-8.
22. Keoghane SR, Sullivan ME, Doll HA, Kourambas J, Cranston DW. Five-year data from the Oxford Laser Prostatectomy Trial. *BJU Int* 2000;86:227–8. doi: 10.1046/j.1464-410x.2000.00701.x.
23. Mattiasson A, Wagrell L, Schelin S, Nordling J, Richthoff J, Magnusson B, et al. Five-year follow-up of feedback microwave thermotherapy versus TURP for clinical BPH: a prospective randomized multicenter study. *Urology* 2007;69:91–6. doi: 10.1016/j.urology.2006.09.009.
24. Hammadeh MY, Madaan S, Singh M, Philp T. A 3-year follow-up of a prospective randomized trial comparing transurethral electrovaporization of the prostate with standard transurethral prostatectomy. *BJU Int* 2000;86:648–51. doi: 10.1046/j.1464-410x.2000.00805.x.
25. Chalise PR, Agrawal CS. Change in urinary symptoms and quality of life in men with benign prostatic hyperplasia after transurethral resection of prostate. *Nepal Med Coll J* 2007;9:255–8.

AUTHORS' CONTRIBUTIONS:

AW: Concept, design, data collection and analysis.

MH & TG: Final approval.

MD: Concept and design.

SZA & KN: Data collection and analysis.