

Medication Adherence Pattern for Benign Prostatic Hyperplasia: A Cross-Sectional Study

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ABSTRACT:

Introduction: Benign prostate hyperplasia is one of the most common diseases and a common cause of lower urinary tract symptoms in aging men. Various disease management approaches to optimize the patient's long life and efficient status where patient adherence to the prescribed treatment plays a vital role. This study evaluated the medication adherence pattern of the patients to obtain successful treatment outcomes. **Methods:** A cross-sectional study was conducted in out-patient department of urology in a tertiary care hospital. Patients diagnosed with benign prostate hyperplasia were interviewed using a structured questionnaire. **Results:** The high expenses of medicine, fear of medication, lack of symptomatic relief were factors that showed statistically significant ($p < 0.05$) difference between adherent and non-adherent group. Similarly, the duration of diagnosis of the adherent group was significantly less than the non-adherent group including the pattern of physical activities ($p < 0.05$). Adherent group also had more participants working in business and services occupation compared to the non-adherent group. **Conclusion:** The general attitude (such as fear of medication and lack of symptomatic relief) is seen as major factors that affect adherent pattern in benign prostate hyperplasia patients. These issues can be solved using proper guidance. However, the cost of medicines also posts an immense issue for the non-adherent group.

Keywords: Adherence, Benign prostate hyperplasia, Lower urinary tract symptoms, Non-adherence

INTRODUCTION:

Benign Prostatic Hyperplasia (BPH) is a proliferation of prostatic stromal cells leading to prostatic enlargement and bladder outlet obstruction, increasing bladder pressure, and reducing urine flow.[1] It is the most common disease in older age men (approximately 80% after 80 years of age).[2,3] Lower Urinary Tract Symptoms (LUTS) is highly prevalent among patients with BPH.[2] These symptoms negatively impact men's quality of life leading to sleep disturbances, sexual dysfunction,

and reduced sexual satisfaction.[4]

Pharmacological drugs such as alpha-blockers and 5 α reductase inhibitors (5-ARI), antimuscarinics, phosphodiesterase-5 inhibitors (PDE-5) are used for long term treatment of LUTS. [5,6,7] Despite the effectiveness of the drugs, adherence to the treatment is also vital to treatment of this disease. Poor adherence attenuates optimum clinical benefits and therefore reduces the overall effectiveness of health systems.[8,9] However, this still remains a challenge due to different factors.[5]

In Nepal, there is a lack of studies measuring adherence to this medication. In this study, we measured the factors affecting adherence for LUTS medication among BPH patients attending Dhulikhel Hospital.

Submitted: 28 June, 2020

Accepted: 14 October, 2020

Published: 30 October, 2020

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How to cite this article:

Shrestha JTM, Joshi HN, Neupane P. Medication Adherence Pattern for Benign Prostatic Hyperplasia: A Cross-Sectional Study. Journal of Lumbini Medical College. 2020;8(2):225-232. DOI: <https://doi.org/10.22502/jlmc.v8i2.386> Epub: 2020 October 30.



METHODS:

A cross-sectional study was carried out in the Department of Urology, Kathmandu University Hospital, Dhulikhel Hospital, Kavre from June 2018 to December 2018 for a duration of six months after obtaining ethical clearance from Institutional Review Committee, Kathmandu University School of Medical Sciences (IRC approval No. 49/18). An approval, to conduct study, was also taken from the Urology Department.

The inclusion criteria for participants were their attendance to out-patient department in the Department of Urology, Dhulikhel Hospital. They had to be diagnosed with BPH for a duration of greater than or equal to six months. They also needed to agree for participation in the study by giving written consent. Participants were excluded if they refused to participate or were newly diagnosed with BPH or under medications for less than six months duration.

Using the CIA factbook, the male population within vulnerable age group (>24 years) for BPH was found to be 20%.[11] With this, confidence level of 95% and margin of error 8.5% was used to calculate the sample size of 86.

Random days of the week were selected in the study period to collect the data. Urology out-patient department (OPD) provided treatment for three days in a week i.e. on Monday, Wednesday and Friday. Initial two random days of the week were selected to collect the data; the random days being Monday and Wednesday. These two days were the same throughout the study period. The participants were chosen by using convenient sampling technique on those random days of the week. A pilot study of the questionnaire was done for 10 participants for possible modifications to make questionnaire understandable, convenient to ask to patients and reduce bias in answers. These 10 participants were also selected on same random days of the week and by using convenient sampling technique. However, no modification was required and those 10 participants were also included in the final analysis.

The structured questionnaire consisted of general information and factors related to adherence. General information of patients included age, marital status, literacy, ethnicity and occupation along with their lifestyle choices such as alcohol

consumption, smoking, physical activities and duration of diagnosis. Factors such as perception about medication, belief about their illness, reasons for doses missed, and their knowledge about disease and medication were asked concerning to adherence. During study, the confidentiality of patients was maintained.

Based on the reported age, the study participants were categorized into six groups in 10-year increments. The data was tabulated in MS-Excel and was analyzed by Statistical Package for Social Science (SPSS™) software version 16. Continuous variables were expressed in terms of mean \pm standard deviation (SD), while categorical variables were expressed in terms of frequency and percentages. Association between the variables and factors affecting adherence was calculated using the Chi-square test or Fisher-exact test whichever was applicable. p value less than 0.05 was considered as statistically significant.

RESULTS:

A total of 91 patients were included for the study that met the inclusion criteria. The mean \pm SD age of the study population was 66.4 \pm 19.9 years. Table 1 lists demographic characteristics of the participants with the chi-square test comparing each feature between adherent and non-adherent groups.

Among the participants who missed their medicine, reasons mentioned were medicine finished (38.6%), carelessness (38.6%), expenses (11.4%), forgot (9.1%) and travel (2.3%). The Chi-square test comparing the adherent and non-adherent pattern in participants with different occupation (Table 1) showed that the frequency of adherent group doing business and services related work was statistically significant (p=0.013).

Table 2 shows the lifestyle choices and patient history with Chi-square test compared between adherent and non-adherent groups. Although 76.9% (N=70) of the participants were not doing regular physical activities, the adherent group had significantly higher participants doing physical activities than the non-adherent group (p=0.039). When comparing the duration of diagnosis of disease, the adherent group consisted of statistically significant participants with newly diagnosed cases (p=0.017).

Table 1. Demographic characteristics and adherence to treatment (N = 91)

Variables	Frequency (%)	Adherent	Non-adherent	Statistics
Age Group (years)				
30-40	2 (2.1)	1	1	X ² = 2.068, df = 5, p = 0.840
41-50	6 (6.6)	4	2	
51-60	19 (20.9)	11	8	
61-70	29 (31.9)	16	13	
71-80	28 (30.8)	12	16	
81-90	7 (7.7)	3	4	
Marital Status				
Married	88 (96.7)	47	41	X ² = 3.31, df = 1, p = 0.068
Unmarried	2 (3.3)	0	3	
Literacy				
Literate	61 (67)	34	27	X ² = 1.239, df = 1, p = 0.265
Illiterate	30 (33)	13	17	
Ethnicity				
Brahmin	33 (36.2)	16	17	X ² = 1.844, df = 4, p = 0.764
Chhetri	28 (30.8)	16	12	
Newar	17 (18.7)	10	7	
Mongolian	6 (6.6)	2	4	
Others	7 (7.7)	3	4	
Occupation				
Farmer	29 (31.9)	10	19	X ² = 10.7, df = 3, p = 0.013*
Business	24 (26.4)	16	8	
Services	21 (23.0)	15	6	
Unemployed	17 (18.7)	6	11	

* - Statistically significant (p < 0.05)

Chi-square test comparing different factors affecting adherence is shown in Table 3. The higher proportion of participants (n=20) from the non-adherent group said they would stop taking medicine if they feel better (p=0.047) compared to the adherent group. The same group also said they have not received symptomatic relief compared to the adherent group (p=0.003). The adherent group posed that they have no fear related to medication compared to non-adherent group (p=0.001). A higher proportion of non-adherent patients said that medicines were not affordable when compared with the adherent group and the difference was statistically significant (p=0.047). Patients were also asked if they had any adverse effects with the medication. Drowsiness (n=8), dizziness (n=8) and running nose (n=3) were reported by the patients. However, adverse effects did not separate between the adherent and non-adherent group (p=0.512).

DISCUSSION:

In this study, we aimed to measure the factors affecting adherence for LUTS medication among BPH patients. The study showed majority of individuals belonged to age group above 50 years. This finding is consistent with another study conducted in Italy in which majority of individuals belonged to age group 55-85 years.[11] Our study also found the prevalence of BPH in the age group below 50 years. The onset of BPH in this age group may be associated with the use of gonadotropin supplement therapy for undescended testes and the mother's utilization of a human chorionic gonadotropin-containing agent during pregnancy to prevent spontaneous abortion.[12]

Adherence to prescribed medication is crucial in the management of patients suffering from BPH. It is, therefore, important to understand the

Table 2. Lifestyle variables and Adherence to treatment (N = 91).

	n (%)	Adherent	Non adherent	Statistics
Alcohol				$X^2 = 0.020$, $df = 2$, $p = 0.990$
Yes	21 (23.1)	11	10	
Occasionally	19 (20.9)	10	9	
No	51 (56.0)	26	25	
Smoking				$X^2 = 1.386$, $df = 5$, $p = 0.5$
Current	15 (16.5)	6	9	
Ex-smoker	29 (31.9)	17	12	
Never	47 (51.6)	24	23	
Physical Activities				$X^2 = 4.277$, $df = 1$, $p = 0.039^*$
Yes	21 (23.1)	15	6	
No	70 (76.9)	32	38	
Duration of Diagnosis				$X^2 = 10.255$, $df = 3$, $p = 0.017^*$
<1 year	46 (50.5)	31	15	
1 – 5 year	36 (39.6)	14	22	
5 – 10 year	6 (6.6)	1	5	
>10 year	3 (3.3)	1	2	

* - Statistically significant ($p < 0.05$)

determinants of poor adherence which is a must to obtain successful treatment outcomes.[2]

Although adherent patient have higher literacy number this was not statistically significant. Higher adherence among the patients in particular occupation group suggests that the occupation might be an important factor for adherence.

This study found that majority of patients did not consume alcohol. This finding may account for the fact that moderate alcohol consumption decrease the risk of BPH as suggested by study of Parson et al., in older men with BPH.[13] The current study found that there was no clear idea of cigarette smoking as modifiable factors. There are conflicting data on the effect of cigarette smoking on serum levels of various sex hormones. Some studies suggested that cigarette smoking produces an antiestrogenic effect. [14]

The majority of the patients in this study were not involved in any types of physical activities. This finding is consistent with different other studies demonstrating that the BPH is associated with modifiable risk factors of cardiovascular disease and suggest that increased physical activity may prevent or attenuate the conditions.[16,17] This could be that the newly diagnosed participants are more likely to follow the prescription.

Smoking may also affect the metabolism of other sex steroids such as testosterone and adrenal hormones, and thereby influence the incidence of benign and malignant growth of prostate.[15]

Absence or reduction of symptoms of the illness contribute significantly to non-adherence to medication.[9] In contrast to this, in our study, a majority of patients continued taking medication despite reduction of symptoms. There is significant association observed between symptomatic relief and adherence to medication. The findings of current study also suggested higher non-adherence to medication in those patients who think the medication is not helping in the reduction of symptoms. The possible explanation might be that patients failed to realise or were not informed about the longer time taken for improvement in the symptoms.

Patient's perception about the nature and severity of disease influences the adherence.[18] In the current study, it was found that the majority of patients perceived that the disease can only be managed symptomatically but still they were non-adherent to medication. However, some patients also perceived the disease as curable. Furthermore, the current study has shown that the majority of patient continued medication despite the reduction of symptoms which is different from the results of other

Table 3. Factors affecting adherence to treatment (N = 91)

	n (%)	Adherent	Non-adherent	Statistics
Knowledge about medication				$X^2 = 1.682$, df = 1, p = 0.194
Yes	77 (84.6)	42	35	
No	14 (15.4)	5	9	
Difficulty in taking medication				$X^2 = 0.207$, df = 1, p = 0.648
Yes	9 (9.8)	4	5	
No	82 (90.2)	43	39	
Patient's perception about disease				$X^2 = 4.52$, df = 2, p = 0.104
Curable	30 (33.0)	20	10	
Incurable	21 (23.1)	8	13	
Can be only managed symptomatically	40 (43.9)	19	21	
Stop taking medicine when feeling better				$X^2 = 3.95$, df = 1, p = 0.047*
Yes	32 (35.2)	12	20	
No	59 (64.8)	35	24	
Adverse effects				$X^2 = 0.431$, df = 1, p = 0.512
Yes	17 (18.7)	10	7	
No	74 (81.3)	37	37	
Symptomatic relief				$X^2 = 8.910$, df = 1, p = 0.003*
Yes	65 (71.4)	40	25	
No	26 (28.6)	7	19	
Knowledge about effect if patient does not take medicine				$X^2 = 0.775$, df = 1, p = 0.379
Yes	60 (65.9)	29	31	
No	31 (34.1)	18	13	
Risk/fear regarding medication				$X^2 = 11.61$, df = 1, p = 0.001*
Yes	21 (23.1)	4	17	
No	70 (76.9)	43	27	
Self-administration				$X^2 = 0.610$, df = 1, p = 0.425
Yes	10 (11.0)	4	6	
No	81 (89.0)	43	38	
Medicine affordability				$X^2 = 3.930$, df = 1, p = 0.047*
Yes	79 (86.8)	44	35	
No	12 (13.2)	3	9	
Medicine availability				$X^2 = 3.014$, df = 1, p = 0.083
Yes	73 (80.2)	41	32	
No	18 (19.8)	6	12	
Follow up				$X^2 = 3.463$, df = 1, p = 0.063
Yes	82 (90.1)	45	37	
No	9 (9.9)	2	7	
Special attention from doctor				$X^2 = 0.594$, df = 1, p = 0.441
Yes	78 (85.7)	39	39	
No	13 (14.3)	5	8	

* - Statistically significant (p < 0.05)

studies on medication adherence on various chronic diseases.[19] Lack of clinical symptoms might often be interpreted as disease free by patients resulting on tendency to discontinue the daily medications as suggested by various studies.[19]

Risk/fear regarding the medication also greatly influences the adherence to the medication. [4] In this study, the majority of patients did not have risk/fear regarding medication. Comparing to the non-adherent group, there was less risk/fear regarding medication in the adherent group. This relation was statistically significant. While in patients who did not have such risk/fear regarding the medication might have helped them to achieve better adherence to medication.

In this study, adverse effects were reported by only 18.68% of patients. The most common side effects experienced by patients were drowsiness, dizziness and nasal congestion. It has been found that ejaculatory dysfunctions are more common among uroselective anatogonists (Tamsulosin) due to their concentrated action in the lower urinary tract.[5] But in this study such adverse effects were not reported by the patients. Similarly, side effects of finasteride like loss of libido, erectile dysfunction, ejaculatory dysfunctions (less common), breast engorgement and gynecomastia were also not reported by the patients. [20,21] This finding supports the idea that the patients might have hesitated to report these adverse effects as it is related to sexual dysfunction. However, there was no significant association found between adverse effects and the adherence to medication. In contrast, non-adherence to medication due to occurrences of adverse effects have been observed in patients with type II diabetes mellitus.[22]

In this study, the majority of the adherent patients reported that the medicines were affordable. Taking medicines on their own might have led to good adherence among those patients though there was no significant association found between them. In contrast, the findings from previous studies have shown that patients who received support from their family members in the course of therapy had better adherence to medication.[23] Several studies have shown that patients tend to skip doses, reduce doses because they cannot afford to pay for medications. [24] The present study has showed that majority of the non-adherent patients could not afford the prescribed medicines. Although, unaffordability of medicines might have led to non-adherences to

medication, no significant association was found. Among the non-adherence patients, the majority of them had missed doses due to lack of affordability of medicine.

In our study there were some limitations as the study was cross-sectional and limited to only one center. A multi-centered follow-up study might provide a better scenario of adherence. Improving on the margin of error with higher sample size could help interpret the data better.

CONCLUSION:

We found that symptomatic relief, risk/fear of taking medicine, stopping taking medicine when feeling better and affordability of medicine were primary reasons affecting adherence to the treatment. Adherence to medication is crucial to treat BPH. Poor adherence to medication regimen and to other non-drug therapy possess significant barrier to optimum management of BPH. This study provides knowledge about the adherence pattern of pharmacological therapy of BPH and various factors regarding adherence pattern influencing in BPH treatment.

Acknowledgement: Our sincere thanks to Department of Urology of Dhulikhel Hospital, Mr. Aman Maharjan, Mr. Himel Shrestha and Dr. Pratigya Bhattarai.

Conflict of Interest: The authors declare that no competing interests exist.

Financial Disclosure: No funds were available for the study.

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