

Factors Associated with Treatment Compliance in Hypertension at a Secondary Health Facility in Islamabad

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Abstract

Background: Hypertension is a prevalent disease worldwide. Despite availability of effective treatment, it remains uncontrolled. Multiple factors are responsible but one of the important contributing factors for uncontrolled hypertension is a poor compliance to the treatment.

Objective: To determine the frequency and risk factors associated with non-compliance among hypertensive patients.

Study type, settings and duration: Cross-sectional prospective study was conducted at a secondary care health facility of Islamabad, Pakistan over period of 03 months from June to August 2017.

Methodology: All hypertensive patients visiting selected hospital for treatment were enrolled after consent. Compliance to treatment was assessed by using the revised morisky 8 item medication adherence scale. A Score of 80% and above was considered as compliant while <80% was graded as non-compliant. In addition, information on socio-demographics, education status, number of medicines, other comorbidities, illness duration, profession, source of income and monthly income were also recorded. After cleaning the data, SPSS software version 22 was used for analysis.

Results: A total of 200 hypertensive patients were enrolled. Overall frequency of non-compliance was 118 (59%). Majority of participants were females 158 (74%), with male to female ratio of 1: 4. Mean age was 50.9 years. Majority 127 (63.5%) was illiterate. Out of 200, 128 (64%), 39 (19.4%), 33 (16.5%) patients were on one, two and three antihypertensive medicines respectively. Most of the patients 82 (41%) purchased medicines with support from family members and only 54 (27%) from government hospital. Fifty (50%) of the participants were from middle socio-economic status with monthly income of 10,000 to 25,000. Non-compliance was statistically associated with lower monthly income less than Pakistani rupees of 10,000, more than 1 antihypertensive medicine, and patients paying out of their pockets for the medicine ($p < 0.05$).

Conclusion: Non-compliance is frequent in Pakistani population. Inabilities to pay out of their pockets, with lower monthly income were the main factors. To improve compliance, hypertension clinics with free supply of antihypertensive medicines should be established with good counseling by the physicians.

Key words: Hypertension, compliance, medicines, monthly income, frequency.

Introduction

Hypertension is defined as sustained increase in blood pressure, when systolic blood

pressure (SBP) of 140 mm Hg or more, or a diastolic blood pressure (DBP) of 90 mm Hg or more, or taking antihypertensive medication.¹ Hypertension is a silent killer and it is one of the most common chronic disease which is prevalent worldwide.² According to the epidemiological data, in 2010 prevalence of hypertension was estimated to be 31.1% worldwide, where as 28.5% in high income countries and 31.5% in low and middle-income countries was reported.³ In Pakistan, National Health Survey, conducted between 1990-1994, showed overall prevalence of hypertension as 19.1%. No data on national level about prevalence of hypertension was published after that but few surveys were conducted in some special populations. Those surveys were from rural northern

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Received: 13 August 2018, **Accepted:** 02 October 2019,

Published: 15 October 2019

Authors Contribution

SA conceptualized the project along with drafting, revision & writing of the manuscript. MT did the data collection. NJ performed the literature search & statistical analysis.

area and rural central Punjab showed 14% and 34.4% respectively.^{4,5}

Hypertension is a major cause of mortality and morbidity. It causes 7.5 million deaths worldwide which is almost 12.8% of total deaths. Blood pressure levels have direct and positive relationship with the complications. In some populations it was observed that rise in 20/10 mm of blood pressure from the baseline doubles the risk of cardiovascular events.⁶

Even a small reduction in blood pressure leads to improvement in disease outcome. A meta-analysis involving 464,000 individuals revealed that for a BP reduction of 10 mmHg systolic or 5 mmHg diastolic, there was a 22% reduction in coronary heart disease events and a 41% reduction in stroke.⁷ Another meta-analysis showed that relative risk reduction is proportional to the magnitude of the blood pressure reductions.⁸ Despite the availability of effective antihypertensive medicines, control of hypertension is not very much promising. In United States (US) according to National Center for Health Statistics (NCHS), only about 48% adults found to have controlled their blood pressure during 2015-2016⁹ however in Pakistan, as per Joint National Committee (JNC VII guidelines)¹⁰ only one in four patients taking antihypertensive medications have achieved desirable BP.

Numbers of factors are responsible for uncontrolled hypertension and non-compliance to the treatment is commonest among all.

Compliance can be defined as the extent to which the patient follows the recommendations of the prescriber.¹¹ According to World Health Organization (WHO) data, poor adherence is a most common cause of uncontrolled hypertension and almost 50-70% of patients do not take the treatment in accordance with their prescription.¹²

Major contributing factors for poorly controlled BP include age, number of drugs, education level, patient knowledge, perception about disease, and benefits of treatment.^{13,14}

As there is limited data available on the frequency of non-compliance towards treatment among hypertensive patients, therefore current study was planned to find out the frequency and risk factors responsible for non-compliance among hypertensive patients in Pakistani population.

Methodology

It was cross-sectional study conducted at a secondary care hospital, Islamabad, over a period of 03 months from June 2017 - August 2017. It is a multi-disciplinary hospital, catering urban as well as rural population of Islamabad. It has medical OPD

where hypertensive as well as patients with other acute and chronic medical ailments are examined and treated. It was a time barred study and all those patients who visited hospital during study period were taken as study participants.

Subject selection: All hypertensive patients visiting the selected hospital for treatment and currently not suffering from complication related to hypertension (Ischemic heart disease, previous myocardial infarction, bypass) were eligible. Hypertensive patients with complications related to hypertension were excluded from the study.

Compliance to treatment was assessed by using the revised validated morisky 8 item medication adherence scale. The questionnaire was translated into Urdu for easy understanding of the participants. Tool was field tested for validity and reliability of questionnaire after translation. Two nurses were trained on how to administer questionnaire to the patients. After taking informed written consent about 10-15 minutes were given to each patients for filling if literate otherwise trained nurses interviewed the patients and responses were recorded. A Score of 80% and above of revised Morisky 8-Item Medication Adherence Scale was considered as compliant whereas a score <80% was taken as non-compliant. In addition, information on socio-demographics, education status, number of medicines, other comorbidities, illness duration, profession, source of income and monthly income were also recorded. After cleaning the data, SPSS software was used for analysis. The study was approved from Ethical Committee of FGH, Islamabad.

Data was entered in Microsoft Excel. Latter imported to SPSS version 20. All the variables analyzed separately. Frequency and percentages were calculated. Non-compliance was compared with other variables by using chi-square test and p-value ≤ 0.05 was considered as significant.

Results

A total of 200 study participants were interviewed with 100% response rate. Females accounted for 158 (74%) of the total sample. Overall prevalence of non-compliance was found as 59% (118 patients (Table-1)).

Male to female ratio was 1: 4. mean age was 50.9 years with most patients between 41 to 50 years of age group (Table-2). Majority 127 (63.5%) was uneducated with only 4 (2%) having education up to graduation. Out of 200, 128 (64%), 39 (19.4%), 33 (16.5%) patients were on one, two and three tablets respectively. Most of the patients, 82 (41%) were getting medicines from family and only

54 (27%) was from government hospitals. Most of the patients were from middle class socio-economic status with monthly income of 10,000 to 25,000 (50%). Socio-demographic characteristics are mentioned in the Table-2.

Table 1: Frequency of treatment compliance among hypertensive patients.

Groups	Frequency	Valid Percent %
Compliant	82	41.0
Non-compliant	118	59.0
Total	200	100.0

Table 2: Socio demographic characteristics of study population.

Variable	Number	%
<i>Education level</i>		
Uneducated	127	63.5
Primary	40	20
Matric	29	14.5
Graduation	2	2
<i>Number of tablets</i>		
One tablet	128	64
Two tablets	39	19.5
Three or more tablets	33	16.5
<i>Source of medicine</i>		
Family support	83	64
Self	39	19.5
Govt. hospital/ free	33	16.5
<i>Monthly income</i>		
Less than 10,000	57	28.5
10,000 to 25,000	100	50
More than 25,000	43	21
<i>Profession</i>		
Employed	161	80.5
Unemployed	39	19.5
<i>Duration of treatment</i>		
Less than 5 years	90	45
More than 5 years	110	55
<i>Co-Morbid condition</i>		
Present	124	62
Absent	76	38
<i>Takes drug when have symptoms</i>		
Yes	89	44.5
No	111	55.5

Presence of co-morbid conditions, profession, education and duration of treatment were insignificant factors (Table-3). Around 89 (44.5%) patients take medicine only when they had symptoms (Table-2).

Non-compliance was more commonly observed in patients with monthly income less than 10,000 rupees those taking more than 1 tablet and paying out of their pocket for the medicine (p -value less than 0.05).

When compared using logistic regression method, profession (p -value =0.02) was found

significant. It means if we see the joint effect of all these variables, profession has significant effect on compliance, as shown in Table-3.

Table 3: Significance among compliant and non-compliance groups.

Variable	Compliant	Non-Compliant	p Value
<i>Age group</i>			
21-40	14	114	0.67
41-60	58	95	
61-70+	101	91	
<i>Gender</i>			
Male	13	29	0.094
Female	69	89	
<i>Education level</i>			
Uneducated	56	21	0.62
Primary	14	29	
Matric and above	12	21	
<i>Number of tablets</i>			
One tablet	73	55	<0.001
Two tablets	5	34	
Three or more tablets	4	29	
<i>Source of medicine</i>			
Family support	19	64	<0.001
Self	20	34	
Govt. Hospital/ free	43	11	
<i>Monthly income</i>			
Less than 10,000	3	54	<0.001
10,000 and above	79	64	
<i>Profession</i>			
Unemployed	73	91	0.02
Employed	9	27	
<i>Duration of treatment</i>			
Less than 5 years	34	56	0.62
More than 5 years	48	62	
<i>Co-Morbid condition</i>			
Present	51	73	0.24
Absent	31	45	

Discussion

Result of our study showed that non-compliance was 59% in patients with hypertension. One such study done at Sunderland showed that 21% of patients were non-compliant, in a hospital at Brazil 42.65%.^{15,16} Study from rural area of Iran showed prevalence of non-compliance as 76%. Ethiopia 69.2% and Egypt 74.1%.¹⁷⁻¹⁹ These results show that prevalence of non-compliance varies in different regions and affected by health system as well. In United Kingdom (UK) where health system is well organized and patients usually get medicine from government hospital free of cost, compliance is much better than other countries. So our results are comparable to the studies done in the developing countries where health system is not well organized.

Two such studies, done at Aga Khan Research University hospital (AKU) Karachi Pakistan showed prevalence as 33% and 46%.^{20,21} Prevalence of non-compliance in our study 59% is

higher than what was found in study from Aga Khan. In a study by Arshia et al in another tertiary care hospital in the same city prevalence was found to be 68.14%.²² Study from railway hospital Rawalpindi by Muhammad Ali et al showed that 81.25% of the patients did not comply with their antihypertensive medications.²³ Findings in our study on the prevalence of non-compliance are similar to most of the studies done in Pakistan. But prevalence in our study was higher than from the studies done at AKUH that may possibly be due to the fact that AKUH is a private hospital where majority of the patients have good socio-economic status, so treatment affordability is not an issue for them. Possibly this was the reason that rate of non-compliance was low at AKUH compared to other hospitals in Pakistan.

It was shown in our study that compliance was influenced by number of medicines being used for treatment. Patients who were taking more than one tablet had non-compliance more than those who were taking one tablet. Same findings were observed in study done in Ethiopia and Malaysia.^{24,25} However results of studies done in Pakistan were in contrast to our findings where patient using complex regimen were likely to be compliant.^{21,22} This compliance may be due to the fact that the most patients who were on more than one drug had co-morbid conditions like diabetes, ischemic heart disease, CKD. Presence of co-morbid may improve perception about the disease resulting in better compliance.

It was obvious from current study that patients getting medicines free of cost from the government hospital or any other health care facility were more compliant than those who had to purchase medicines on their own. Different studies revealed that patients who had to pay for medicine themselves are more likely to be non-compliant.^{22,26} Findings are same as found in our study.

Socio-economic status is very important factor in determining the compliance, especially in countries where health system is not well organized. Our study revealed that patients who had monthly income less than Pak Rs. of 10,000 and PAK Rs. of 10,000 to 25,000 were more non-compliant than those who had monthly income more than 25,000 showing that monthly income had a direct relationship with the compliance rate. Same results were revealed in studies from India, Ethiopia and Pakistan respectively.²⁷⁻²⁹

Another important factor found in our study was poor perception about the disease and control of blood pressure in our patients. About half of the patients (44.5%) took medicine only when they had symptoms related to hypertension. It is a major

issue observed in hypertensive patients that they think, they need to take antihypertensive medicines only when they have symptoms. A study from Pakistan and one from Turkey showed that perception about the disease was poor among patients suffering from hypertension.^{30,31}

Our study showed that compliance among hypertensive patients was not affected by age and gender of the patient. Same findings were observed in another study conducted in Pakistan.³² A study carried out by Sonia et al discussed the same results.³³

Out of total, 59% were non-compliant to treatment. Main factors leading to non-compliance are poor socio-economic status, low monthly income, cost of medicine paid by the patient and poor perception about the disease/ importance of blood pressure control. In order to improve compliance, special hypertension clinics should be established with free supply of antihypertensive medicines. Patients should be encouraged and counseled regarding importance of control of blood pressure and regular use of antihypertensive medicines.

Acknowledgement

We are grateful to our study participants.

Conflict of interest: None declared.

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