

# Assessment of Adherences to Medication Therapy in Hypertensive Patients and Effect of Patient Counseling in Tertiary Care Hospital

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## ABSTRACT

The physician ability to understand non-adherence to therapy is limited and interventions by clinical pharmacist to improve compliance has effective results. However, poor compliance accounts for worsening of disease state and ultimately will increase the health care cost. The study aimed to investigate the medication adherence in hypertensive patients and the effect of counseling in a tertiary health care setting. The study was carried out in Ayub Teaching Hospital Abbottabad, KPK, Pakistan. It is a multispecialty tertiary care hospital with a modernized cardiology department. It caters to the need of both in and out patients. An assessment was made on hypertensive patients who are receiving multiple drugs were included in the study. A medication adherence questionnaire was prepared based on literature. Among 300 patients 205 were adherent to medication whereas 95 were non adherent and those non adherent patients

were given verbal and non-verbal counseling regarding adherence to therapy. Health professionals can solve the problem of patient compliance by providing effective patient counseling. Certain technique can be adapted like motivational interviewing, teach-back method which can help to ensure patient understanding regarding the therapy.

**Key words:** Compliance, patient counseling, adherence to therapy

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## INTRODUCTION

Adherence to therapy is defined as the extent to which the patients take medications as prescribed by the health care provider.<sup>[1]</sup> A prescription is a legal written document which carries all the regulations in order to ensure the safe use and to comply with the therapy.<sup>[2]</sup> The adherence rates are higher in those patients having acute conditions as compare to those having chronic conditions.<sup>[3,4]</sup> Ability of health care provider to identify non-adherence is deprived and interventions to improve adherence to therapy have had varied outcomes.<sup>[5-7]</sup> Hypertension is defined as a blood pressure (systolic/diastolic)  $\geq 140/90$  mmHg.<sup>[8]</sup> It has been estimated that hypertension is responsible for 4% of the global burden of disease. It is one the major cause of mortality and morbidity both in developing and in developed regions.<sup>[9]</sup> Reduction in BP are directly associated with reduction in incidence of cardiovascular heart disease, stroke and renal disease.<sup>[10,11]</sup> However, the risk of cardiovascular disease and stroke increases continuously as SBP rises above 115 mmHg.<sup>[12]</sup> However, adherence behavior is complex including ceasing to take the prescribed medications, to taking only few, to taking them in a way that differs from instructions for example, not to take after food immediately. It is estimated that overall hypertensive patients take only 53-70% of the medications prescribed for them.<sup>[13-15]</sup>

The National Institute for Health and Clinical Excellence and WHO in their respective guidelines and review strongly recommends the adoption of individualized consultation which recognizes the importance of involving the patients in therapeutic decision as a key to enable the clinician to enhance the adherence to therapy.<sup>[16]</sup>

Primary focus on exploring patients beliefs about illness and treatment and providing rational information about illness and treatment and specific information about disease (hypertension) and its treatment (medication and life style modification) are also strongly advocated for example, by using face to face education sessions or providing information leaflets. This guidance is based on observational research.<sup>[17]</sup>

Certain methods can be used to improve adherence are grouped

into four categories: Patient education; improved dosing schedules; improved communication between physician and patients. Educational interventions involve patients, their family members, or both can be effective in improving adherence to therapy.<sup>[18]</sup> However, enhancing communication between the physician and the patient is a primary and effective strategy in boosting the ability of patient to follow the medication regimen.<sup>[19]</sup> Most methods for improving adherence involves the combination of behavioral interventions and reinforcements in addition to increasing the convenience of care, providing educational information about the patient's condition and the treatment and other forms of supervision.<sup>[20,21]</sup> However, successful methods are complex and labor intensive, and certain innovative strategies will be needed to be developed that are practical for routine clinical use.<sup>[21]</sup>

## MATERIALS AND METHODS

The study was carried out in Ayub teaching hospital Abbottabad, KPK, Pakistan. This is 1500 bedded hospital with a full fledged cardiology department. It satisfies the needs of both in and out patients. An assessment was made on hypertensive patients who are receiving multiple numbers of drugs. A medication adherence questionnaire was prepared based on literature.

## Development of questionnaire

The items of questionnaire were constructed on the basis of study objectives. The questionnaire consisted of total 20 questions. Questions

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evaluated the adherence to therapy by using likert scale from 1 to 5. Higher values show increased adherence to medication. Level of adherence was measured initially and after one month interval. From those values efficacy of the counseling was determined.

### Validation of questionnaire

Information was collected by interviewing the patients using a questionnaire. It is validated that the respondent understands the question properly being asked. As a result the questions are modified accordingly. Reliability of the questionnaire was assessed and the value of cronbach alpha was found to be 0.80 reflecting internally consistent items.

### Population study

Study was conducted on total of 300 patients of either sex after taking the written informed consent and using the medication adherence patients were categorized into two groups like adherent and non-adherent. Patient inclusion and exclusion criteria were established [Table 1]. Among 300 patients 205 were adherent to the therapy while 95 were non adherent. The non-adherent patients were given verbal and non-verbal counseling in a private counseling room. Hence, they were grouped as follow:

- **Group 1:** 185 patients who are adherent and has normal BP.
- **Group 2:** 20 patients who are adherent but has abnormal BP.
- **Group 3:** 95 patients who are non-adherent and has a high BP.

### RESULTS

In these different groups, it was observed that there were some patients who are on multiple drugs and they were adherent and has a normal BP, 78 patients who had 5 drugs of which 64 were adherent with normal BP and 14 were non adherent with high BP. There were 54 patients on 4 drugs; of which 30 were adherent with normal BP, 10 were adherent with high BP and 14 were non adherent with high BP. From 88 patients on 6 drugs; 43 were adherent with normal BP while remaining 45 were non adherent with high BP. Among the 79 patients on 8 drugs; 11 were adherent with the therapy having normal BP, 5 were adherent with high BP, and 63 were non adherent with high BP [Table 2].

Regarding the education levels in these groups, there were 34 patients who had secondary level of education; of which 4 were adherent with normal BP, and 5 were adherent with high BP, and 25 were non adherent with high BP. There were 53 patients with secondary level of education; of which 26 were adherent with normal BP, 3 were adherent with high BP and 24 were non adherent with high BP.

From 67 patients who had pre university level of education; 33 were adherent with the normal level of BP, 5 were adherent with the high BP, and the remaining 29 were non adherent with the high level of BP.

Among 78 patients with the graduate level of education, 38 were adherent with the normal level of BP, 6 were adherent with the high BP, and 34 were non adherent with the high level of BP [Table 3].

Following the guidelines of WHO for BMI, it was observed that there were maximum number of patients who were overweight, followed by the patients of normal weight and obese [Figure 1].

Among the gender wise distribution of the population there were 60% of males and 40% females [Figure 2].

Regarding the occupation there were different categories like retired, business, employees and house wife a specific trend was observed in adherence to the therapy. Among 80 patients who were retired; there were 27 who were adherent to the therapy and have a normal BP, while 19 were adherent and have a high BP, and 34 were non adherent with a high BP.

There were 30 patients who were housewife and staying at home of which 18 were adherent with the normal BP, 4 were adherent with a high BP, and 8 of them were non adherent with the therapy with a high BP. While among the 39 patients who were employees; 21 were adherent and had a normal BP, 5 were adherent with a high BP, and 13 were non adherent and had a high BP.

From 60 patients who were involved in the business, 25 were adherent and had a normal BP, 6 were adherent with high BP, and 29 were non adherent with a high BP [Table 4].

### DISCUSSION

It was observed that the number of patients with the normal level of BP decreased as the number of drugs is increased with the maximum number of 64 in 5 drug categories and minimum of 11 in 8 drug category. The number of patients with the high BP values remains the same whether they were on 6 or 8 drugs. However the number of non-adherent patients with high BP value is increased as the number of drugs is increased in the therapeutic regime.

However, the number of graduates were more in the group 1 of the study and there were less graduates in group 2 as compare to group 3 so it revealed that no matter there were more educated people but they were not adhering to the drug therapy as compare to the group 1 where there were more secondary school and pre university level is the reason for more adherence to the therapy.

**Table 1:** Basic eligibility criteria

Inclusion
18 years and above patients of either sex
Patients who were willing to participate and give the consent form
In patients and out patients who were diagnosed for hypertension
Exclusion
Pediatric population
Pregnant and lactating women
Patients in ICU

**Table 2:** Number of drugs used in different groups

Number of drugs	GP1	GP 2	GP 3
5	64	0	14
4	30	10	14
6	43	0	45
8	11	5	63

**Table 3:** Educational status of population

Level of Education	GP1	GP 2	GP 3
Primary level	4	5	25
Secondary level	26	3	24
Pre university level	33	5	29
Graduates	38	6	34

**Table 4:** Occupational Level among the Population

Occupation	GP1	GP 2	GP3
House wife	18	4	8
Employee	21	5	13
Retired	27	19	34
Business	25	6	29

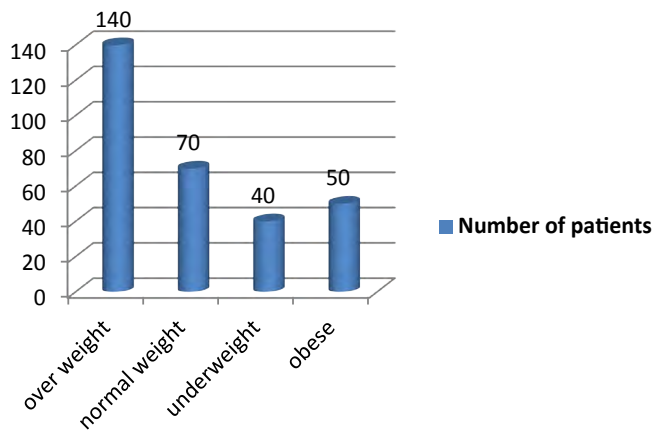


Figure 1: Body mass index of study population

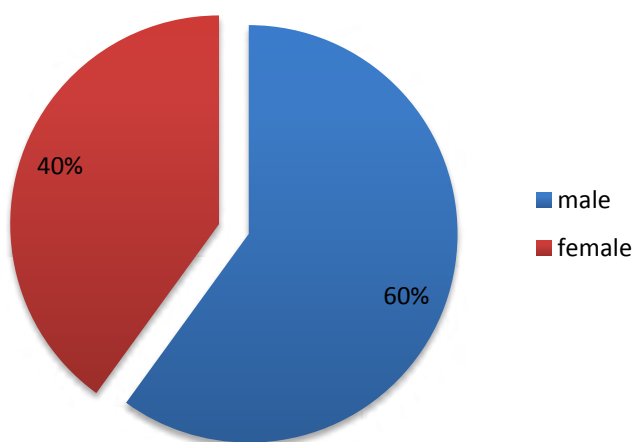


Figure 2: Gender wise distribution of population

It was observed during the study that the number of patients who belong to group 3 in the business category of the patients were greater in the number as compare to group 1 of that category which revealed that patients in business category were non adherent to the therapy and its due to their busy schedule.

While analyzing the data of patients in the retired patient's category it was clearly observed that the number of patients was more in group 3 which was non adherent to the therapy and it's due to their age and poor memory which yields to not taking of the dose in time.

Among the group 1 (adherent with the normal BP) and group 2 (adherent with high BP) there was no significant changes as these patients were already adherent to their medications. However, there was remarkable improvement in adherence to the therapeutic regime after patient counseling of group 3, and it is observed that counseling the patients at the time of dispensing the medication will highly increase the adherence rate.

## CONCLUSION

This study has clearly shown the positive impacts of patient counseling.

However, there are certain things which health care professionals can do in order to tackle the problem of adherence to therapy. However, this study confirms that counseling intervention by the pharmacist improves the patient knowledge towards disease management and also increases the compliance rate. This study also concluded that patient counseling role of pharmacist is very important in other chronic disease management such as diabetes, cardiovascular diseases. It has been revealed that patient adherence can be enhanced by improving the patient level of understanding regarding the disease state and also emphasizing the importance of therapeutic plan. However, techniques like teach back method and motivational interviewing can help to understand the importance of counseling provided. This study also concluded that pharmacist plays a critical role in the disease management and adherence to the therapeutic plan.

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