



*Original Research Article*

**A STUDY ON CLINICAL PHARMACIST MEDIATED PATIENT COUNSELING IN HYPERTENSIVE PATIENTS AT RURAL TERTIARY CARE TEACHING HOSPITAL**

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**ABSTRACT**

**Background:** Hypertension is a nutritional-hygienic disease. Co-morbidity with other diseases associated with hypertension may influence Quality of Life (QOL). Factors that may affect QOL of hypertensive are blood pressure, adverse effects of drugs used to treat hypertension & subsequent complications about illness and treatment. Poor medication adherence and lack of knowledge and awareness on hypertension are the major reasons for poor BP control. Therefore hypertensive patients require more pharmacological and non-pharmacological knowledge on the management of their disease to achieve their recommended target BP and to improve their QOL. Thus, pharmacological and non-pharmacological benefits can be achieved through the patient's understanding of disease, medications & lifestyle modification, when the pharmacist provides them with useful practical information via Counseling.

**Study design:** It was a questionnaire based, prospective, observational study assessing the knowledge, attitude and practice through patient counselling.

**Material and Methods:** Out of 100 hypertensive patients included under the study, 53 males (53%) and 47 females (47%) were the respondents. Knowledge about non pharmacological management for HTN before counseling was (22%) & after counseling (93%). Awareness on symptoms and complications of HTN before counseling was (10%) & after counseling was 96%. Awareness on Lifestyle modifications of HTN before counseling was 22% and after counseling was 94%. Among 100 Subjects 48% were non-adhered to medications before counseling and (15%) after counseling, and 33% of adherence was achieved.

**Conclusion:** patient counseling has a strong positive impact in increasing the patient knowledge about the disease, non pharmacological therapy and medication adherence, prolonging life & improving the QOL of rural hypertensive patients.

**Key Words:** Patient Counselling, Medication Adherence, QOL.

**INTRODUCTION**

Hypertension is a nutritional-hygienic disease. Long term caloric intake in excess of energy expenditures, chronic supra-physiological intake of dietary sodium, excessive alcohol consumption, and psychosocial stressors all contribute to the development of hypertension throughout the world. Elevated BP, particularly systolic BP, has been linked to multiple adverse clinical outcomes including stroke, heart failure, myocardial infarction, renal insufficiency/failure, peripheral vascular disease, retinopathy, dementia, and premature mortality.<sup>2</sup> Co-morbidity with other diseases associated with hypertension may influence how persons with hypertension rate their QOL. Concurrently with the benefits for hypertensive patients who are adequately treated, antihypertensive medication may produce adverse effects which affect the pleasure of living. Factors that may affect QOL of hypertensive are blood pressure, adverse effects of drugs used to treat hypertension, subsequent complications, labeling effect, or beliefs and attitudes about illness and treatment. Poor medication adherence and lack of knowledge and awareness on hypertension are the major reasons for poor BP control which is largely related to deterioration in a patient's quality of life. Therefore hypertensive patients require more knowledge on the management of their disease to achieve their recommended target BP and to improve their quality of life. Thus, pharmacological and non-pharmacological benefits can be achieved through the patient's understanding of disease, medications & lifestyle modification, when the pharmacist provides them with useful practical information via Counseling.<sup>8, 9</sup> Compliance with pharmacological and non-pharmacological treatment of hypertension has various benefits for the individual, the health care system and the society at large.<sup>13</sup> In the chain of healthcare providers, the pharmacist are in a key position to apply interventions to improve knowledge, awareness, adherence, and hence the therapeutic outcomes and quality of life in patients with hypertension.

**STUDY METHODOLOGY**

This study was carried out over a period of 6 months from January 2013 to June 2014 in a tertiary care teaching hospital in B.G.Nagara, Karnataka. Ethical clearance to conduct this study was obtained from the Institutional Ethical Committee, AH & RC, SAC College of Pharmacy, B.G.Nagara, and strict confidentiality was assured for all the collected information. Patients admitted to the medicine inpatient department with a clinical diagnosis of

hypertension (HTN) or patients with co morbidities with HTN were enrolled in to the study after getting their written informed consent. Demographic details of the patients, family history, social habits, disease and treatment were collected in a suitably designed patient data collection form. All enrolled patients were answered to the questionnaire included the questions regarding the knowledge, attitude and practice of patients regarding the management of hypertension. Education regarding disease, medication, diet, and lifestyle modification was provided through counselling. (Among 10 questions, Validation of questionnaire was carried out via conducting pilot study with 10 patients). The reliability analysis of the study was performed by re-counseling the patient by using same questionnaire form. BP and BMI were recorded at every follow up.

**Patient counseling:**

Patient counseling may be defined as providing medication information orally or in written form to the patients or their representative or providing proper directions of use, advice on side effects, storage, diet and life style modifications. It involves a one-to-one interaction between a pharmacist and a patient and/or a care giver. It is interactive in nature. The effective counseling should encompass all the parameters to make the patient/party understand his/her disease, medications and life style modification required.<sup>12</sup>

**Adherence to hypertension treatment:**

Hypertension has no cure therefore; patients are expected to take medications for life. Drug treatment of hypertension demands that patients comply with their medications as prescribed and they should return for a refill when medications are exhausted. They should honor their appointments for follow up visits with their clinician and adopt health actions that are recommended to lower their blood pressure. Compliance with pharmacological and non-pharmacological treatment of hypertension has various benefits for the individual, the health care system and the society at large.<sup>13</sup>

**Role of Pharmacists in management of hypertension:**

The adherence, or compliance, studies about the hypertension are frequently focused on only the pharmacological interventions. In some studies, the diet has also been interrogated. Medication dispensing is the best-known function of the pharmacist, pharmacists through counseling, Medication Therapy Management (MTM), disease-state management, and other means can play a

pivotal role in patient care. There are opportunities in every type of pharmacy practice to improve patient’s adherence and therapeutic outcomes, and pharmacists must embrace and action them.<sup>13</sup>

Therefore, the purpose of this study is to evaluate the effect of Pharmacist’s interventions to improve outcomes and quality of life in discharged patients with hypertension in a multi- specialty tertiary care teaching hospital.

Table 1: Drug counseling points in hypertension

Drug category	Pharmacist role
Diuretics	Monitor for muscle weakness, confusion, dizziness. Ensure patient participation in dose modulation. Select appropriate dose timing to avoid frequent urination in the night. Explain about the possibility of drug interactions with ACE inhibitors.
Beta blockers	Monitor for hypotension, dizziness, headache, and bradycardia. Educate regarding possibility of nocturnal dreams, impotence and CNS problems. Explain the need for dose tapering before stopping the drug.
ACE inhibitors	Monitor for hypotension, dizziness, cough, taste disturbances and rash.
Calcium channel blockers	Monitor for swollen gums, chest pain, swollen joints (with nifedipine), constipation, dizziness, and light-headedness. Educate the patient to swallow the extended release tablets as a whole. Explain to the patient how to monitor his heart rate by measuring the pulse rate.
Alpha blockers	Monitor for hypotension. Patients on Gastro Intestinal Therapeutic System (GITS) preparation should be told not to crush/chew the tablets.

**RESULTS**

A total of 100 patients were enrolled into in to the study.53% were males and 47% were females.

Table 2: Patient response before and after counselling through Questionnaire

Data collection form questionnaire	Before counseling YES	Before counseling NO	After counseling YES	After counseling NO
1. Do you know that how much was the normal blood pressure?	18	82	94	6
2. Do you the symptoms of hypertension?	10	90	98	2
3. Do you know that life style modification can control your blood pressure?	12	88	90	10
4. Are you aware of any complication of blood pressure?	10	90	95	5
5. Do you that regular physical exercise will control your B.P?	12	85	97	3
6. Do you know obesity is a risk factor for hypertension?	11	89	90	10
7. Do you know that low salt intake control B.P?	83	17	100	0
8. Are you aware that smoking and drinking alcohol are risk factors for HTN?	53	47	95	5
9. Do you take all your prescribed medications regularly?	52	48	85	15

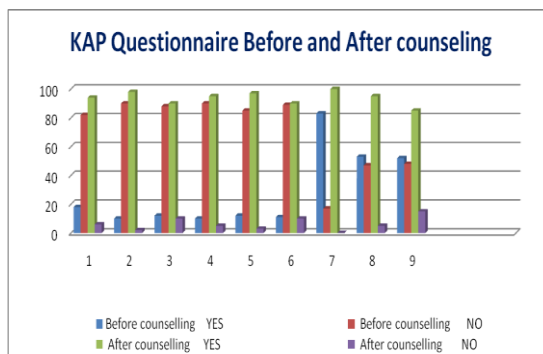


Figure 1: Shows the questionnaire in data collection form

This was based on a questionnaire about the knowledge of discomfort during therapy, dosage adjustments, lifestyle modifications, dietary modifications, management of hypotension conditions, complications of Hypertension. It was observed that patient knowledge on their non-pharmacological treatment, self care increased when they were counseled for the same. Which evident from study data which should that Knowledge about non pharmacological management for Hypertension before counseling was 22% and after counseling was 93%.Awareness on symptoms and complications of HTN before counseling was 10% and after counseling was 96% Awareness on Lifestyle modifications of HTN before counseling was 22% and after counseling was 94%.

Table 3: Reasons for Non Adherence to Medications

REASON	Before Counseling	After Counseling
1. I cannot afford the cost	2	0
2. Medications are not easily available	4	3
3. I don't like to take medications	4	1
4. I only take them when I feel that I need them	7	1
5. I don't like the side effects of the medication	2	1
6. I prefer alternative medicine	0	0
7. I forget	29	8
8. I don't know	0	1
<b>TOTAL</b>	<b>48</b>	<b>15</b>

Table 3: Shows the reasons,& distribution of subjects non-adhered to the medications. Among 100 study Subjects 48% were non- adhered to medications before counseling and 15% were non-adhered to medication after counseling. By conclusion among 48% of non adherent patients 33% of adherence was achieved

**DISTRIBUTION OF BMI AMONG STUDY SUBJECTS**

Table 4: Distribution of BMI among study subject

BMI	Number of patients	Percentage
Normal(19-24 kg/m2)	53	53%
Overweight(25-29 kg/m2)	26	26%
Obese (>30kg/m2)	21	21%

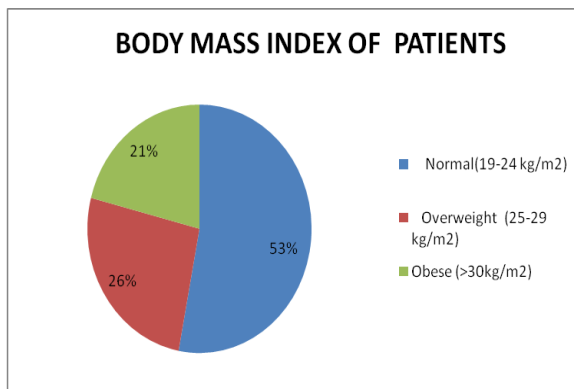


Figure 2: Distribution of BMI among the study Population

Table 4 and Figure 2 shows the distribution of BMI among the study Population. Among 100 subjects 53% were Normal, and 26% were overweight and 21% were obese.

**ALCOHOLIC AMONG SUBJECTS**

Table 5: Distribution of alcoholic subjects among study subjects

Gender	YES	NO
MALES	31(58.4%)	23(43.39%)
FEMALES	4(8.51%)	42(89.36%)

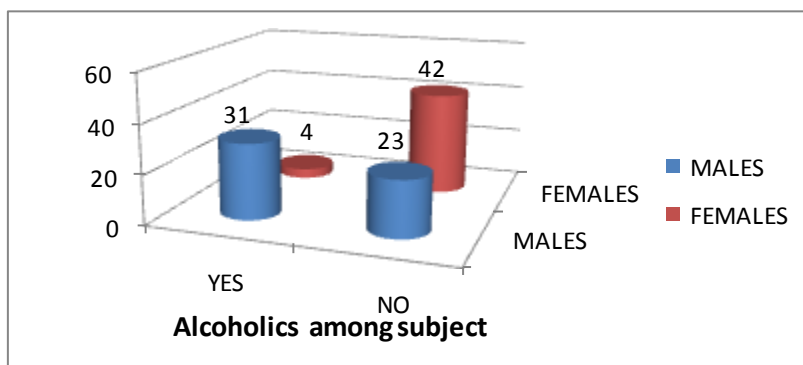


Figure 3: Represents Alcoholic subject's distribution among the study Population

Table-5 and Figure-3: Shows the alcoholic consuming subjects among the study population. Among 100 subjects Alcoholic consuming subjects were 38(58.4%) males and 4(8.51%) females.

**FRESH CASES OF HTN AMONG SUBJECTS**

Table 6: Shows distribution of freshly diagnosed HTN patients among study population

Gender	Newly Diagnosed	Percentage
MALES	21	39.62%
FEMALES	19	40.42%

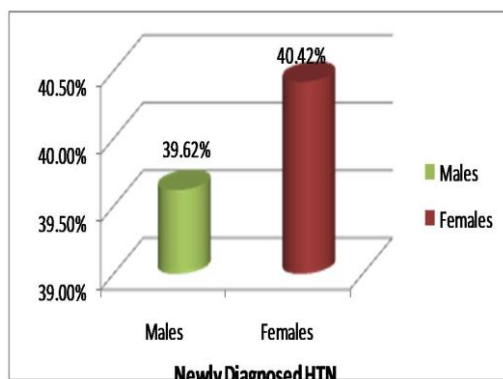


Figure 4: Represents distribution of freshly diagnosed HTN patients among study population

Table-6 and Figure-4: Shows freshly diagnosed HTN patients among study population. Among 100 subjects freshly diagnosed HTN subjects were 21(39.62%) males and 19(40.42%) females.

**KNOWN CASES OF HTN AMONG STUDY SUBJECTS**

Table 7: Distribution of known cases of HTN subjects among the study population

Gender	Known cases of HTN	Percentages
MALES	34	64.15%
FEMALES	26	55.31%

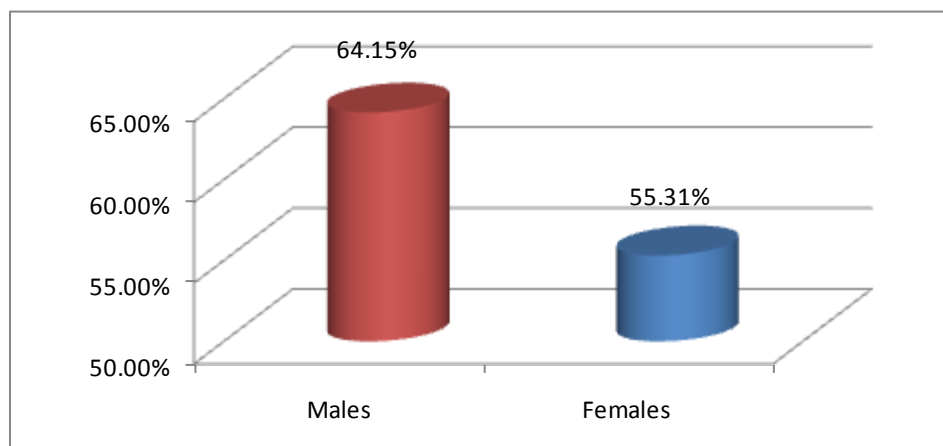


Figure 5: Distribution of known cases of HTN subjects among the study population

**Table-7 and Figure-5:** Shows the distribution of known HTN subjects among the study population. Among 100 subjects known case of HTN 34(64.15%) were males and 26(55.31%) were females.

**AGE FACTOR AMONG HTN SUBJECTS**

Table 8: Shows age distribution among the study population

AGE	MALES	FEMALES
30-40	14	14
40-60	27	20
> 60	12	13

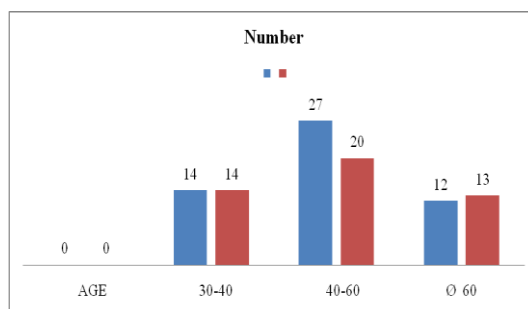


Figure 6: Shows Age Distribution among the study population

**Table-8-and Figure-6:** Shows the distribution of various age groups among the study population. Among the total study population of 100 subjects, 14 males and 14 females patients belonged to the age group 30-40, (27) males and (20) females patients belonged to the age group 40-60, 12 males and 13 females patients were from the age group of above 60.

**DISCUSSION**

In this study a total of 100 patients were enrolled and out of which 53(53%) patients were males and females were 47(47%). Among the various age groups in the study population, maximum number of patients 47(47%) were found in the age group 40-60 and the least number 28(28%) was found in the age group 30-40, 25(25%) were found to be above the age group 60.

Among the 100 patients 38(38%) patients had family history of Hypertension. Duration of medical history was found the highest in the range of 1-5years, for about 64(64%) patients.

Among the 100 patients 63(63%) patients are having literacy rate. Newly diagnosed HTN patients were 40(40%) patients and past history of HTN were 60(60%).

**KNOWLEDGE, ATTITUDE AND PRACTICE**

Knowledge, attitude and practice are the important parts in disease management; this study gives a clear idea about the patients' knowledge regarding disease, drugs and its usage. Figure 1 and Table 1, 2 shows analysis found that patients had a poor perception about their disease. Among 100 patients only 12% patients are aware of life style modifications in controlling B.P. and 83% of patients have knowledge on reduced salt intake 12% of patients

have aware on Regular exercise may control B.P. Out of 47% of patients who are obese only 10% of patients are aware that obesity is risk factor of HTN.

**MEDICATION ADHERENCE AND B.P**

A non adherence of 48% was observed among 100 study subjects. However repeated counseling with the aid of patient information leaf lets and dairy cards showed improvement on medication adherence and significantly reduced the B.P. The common reasons for non adherence found in the enrolled patients forgetfulness, availability and cost of the medications.

**LIMITATION OF THE STUDY**

- Lack of controlled group is the limitation for the study.
- The study was conducted in short period of 6 months, even this study can be extended.
- Monitoring of medication adherence by Diary card was slightly difficult.

**CONCLUSION**

The study showed that clinical pharmacist provided patient counseling has a strong positive impact in increasing the patient knowledge about the disease, non pharmacological therapy and

medication adherence behavior, prolonging life and improving the QoL of rural hypertensive patients. The study also highlights that there is a need of patient counseling services for the rural population for HTN. A 100% compliant patient with sufficient knowledge regarding his/her disease, medication and lifestyle modification is a long journey. Pharmacists, being active members of the healthcare team can play an important role in providing patient counseling so as to improve patient compliance and hence the therapeutic outcomes and quality of life

**ABBREVIATION:** KAP (knowledge, Attitude and Practice) QOL (Quality of life).

#### CONFLICT OF INTEREST

Authors declare no Conflict of Interest.

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