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## EVALUATION OF HYPERTENSION KNOWLEDGE AND DRUG ADHERENCE AMONG SOUTH INDIAN POPULATION

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**ABSTRACT:** **Objective:** To investigate the patient's knowledge of hypertension fact with validated Morisky questionnaires and management of drug adherence. **Materials and Methods:** The aim of one present study was undertaken 100 patients attending the cardiology, outpatient department in various private sector hospitals in southern Tamilnadu and to assess the patient's medication knowledge and drug adherence on hypertension with validated questionnaires method. **Results:** Out of 100 hypertensive patients (17%) of the subjects had adequate, (21%) of the patients had moderate medication knowledge about hypertension or maximum while (62%) were categorized as poor medication and adherence 35% of the people are in medium adherence only 3% are in high adherence. **Conclusion:** The disease knowledge of subjects' rate was low, and patients were unsure of the benefits of continuous medication use and resulted in non-adherence. Educating hypertensive patients clarifying doubt regarding the benefits of adherence, medication uses, and control hypertension.

**INTRODUCTION:** Hypertension is a widely prevalent disease and a major risk factor for adverse cardiovascular events, including stroke, coronary artery diseases, peripheral vascular disease, heart failure, and chronic kidney disease. In primary prevention studies, there is a continuous relationship between blood pressure and adverse cardiovascular outcomes, including. This relationship holds even within the level of blood pressure previously defined as normal. The growing appreciation of the importance of even mild hypertension has contributed to periodic revisions in the clinical approach to this disease, including criteria for the diagnosis of hypertension, stratification of hypertension severity and indications for treatment <sup>1</sup>.

Hypertension remains significant complication and challenge in growing public and around the world<sup>2</sup>. Prescription of the drugs and poor compliance of the patients is a common and important complication in clinical practices which can fail the result in treatment of hypertension <sup>3</sup>. Poor compliance with treatment of drugs is a barrier to the effective management of hypertension <sup>4</sup>.

This study aimed to investigate the patient's knowledge of hypertension fact with validated Morisky questionnaires and management of drug adherence.

### MATERIALS AND METHODS:

**Study Design:** A Cross-sectional descriptive comparative study

**Study Site:** General medicine department of tertiary care teaching hospitals in Tamilnadu.

**Study Settings:** Patients for this study were obtained from four hospitals in Tamil Nadu, India. All these hospitals are situated in a low socioeconomic area with the middle class

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population. Hence we hope the knowledge, perception, attitudes, and lifestyle practices of the community will be representative of the area.

**Sample Size:** The sample size of 100 patients recruited from four hospitals in southern Tamil Nadu.

**Sampling Method:** In the various health facilities used, eligible respondents were randomly selected.

**Study Period:** The study was conducted for a period of 8 months from May 2012 to December 2012.

**Ethics:** The Independent ethics committee approved the study in a proper forum. After proper approval, one hundred patients who accepted to participate were included in the study. After obtaining patient consent, the subjects were interviewed to gather clinical and demographic details.

**Diagnosis of Hypertension:** Hypertension was diagnosed by measurement of systolic and diastolic BP with a standard mercury sphygmomanometer on both arms at the same period of the day on at least two occasions using standardized methods

**Inclusion and Exclusion Criteria:** Those who were eligible for inclusion into this descriptive cross-sectional, qualitative phenomenological survey were a cohort of 100 adult male and female hypertensive patients drawn from 4 randomly selected health facilities in Tamil Nadu. Participants with a systolic blood pressure (SBP) above 120 mmHg and diastolic blood pressure (DBP) above 80 mmHg and who were willing to participate in the study were included whereas patients who were pregnant excluded.

#### **Development of Questionnaires:**

**Hypertension Fact Questionnaire:** Hypertension Fact Questionnaire on hypertension was developed as a tool to assess knowledge among hypertensive patients. The questionnaire was initially developed in English and then translated into the language as Tamil. The questionnaire consists of 15 questions to assess the patients' knowledge of hypertension. The questionnaires were then given to the patients who met the inclusion criteria, and their knowledge about hypertension was assessed.

**Morisky Medication Adherence Scale:** Their medication adherence behavior and the reasons for non-adherence were studied using Morisky self-report measure of medication adherence.

Morisky scale consists of 8-point questions (never / rarely / sometimes / often / always) and a set of open-ended questions regarding reasons for non-adherence. Scores for the scale range from Low Adherence (< 6), Medium Adherence (6 to <8) and High Adherence (= 8)

Higher the scores are indicative of worse adherence. All the subjects answered 'YES' for at least one question, and they were considered as non-adherent.

#### **RESULTS AND DISCUSSION:**

**Disease Knowledge with Hypertensive Patients:** Disease knowledge with hypertensive patients and validated questionnaires were pivot tested with 100 established subjects. **Table 1** described out of the 100 patients, 62 (62%) were within the poor medication knowledge and 21 (21%) moderately, and only 4 (4%) showed adequate disease knowledge about hypertension<sup>5</sup>.

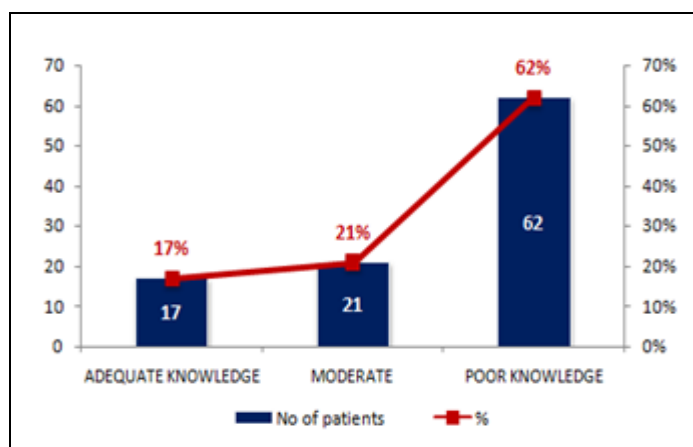
Hypertension control begins with detection and continued surveillance; initial readings should be confirmed with subsequent readings for several weeks unless the pressure is dangerously high at the first reading. The goal of therapy is to prevent the morbidity and mortality associated with high blood pressure and reduces the pressure by the least intrusive means possible<sup>3</sup>.

In the present study, diseases knowledge suggesting that there are other factors for the hypertensive patients who need to be explored<sup>6</sup>. Hypertensive patients had minimum knowledge about diseases. In the content of the south Indian population, the effect of responses to hypertension knowledge possessed by the subjects on medication is still uncertain as there was no previous study in the same location that can compare with present status<sup>7</sup>.

Nonadherence patients have improving diseases knowledge may require an adequate multi-dimensional approach aimed at meeting<sup>9</sup>.

**TABLE 1: PATIENT’S KNOWLEDGE OF HYPERTENSION FACT WITH MORISKY QUESTIONNAIRES**

S. no.	Questions	Sample	Yes	No	%Yes	%No
1	Do you know the normal values of blood pressure?	100	37	63	37%	63%
2	Increased BP is called as hypertension	100	22	78	22%	78%
3	Hypertension is a condition which can progress along with age	100	44	56	44%	56%
4	Both men and women have equal chances of developing hypertension	100	37	63	37%	63%
5	Hypertension is a treatable condition	100	94	6	94%	6%
6	If someone have a family history of hypertension, member of the family are at risk for developing the same condition.	100	87	12	87%	12%
7	The older a person is, the greater their risk of having hypertension	100	86	14	86%	14%
8	Smoking is a risk factor for hypertension	100	88	12	88%	12%
9	Eating fatty foods does not affect blood cholesterol levels which is a risk factor for developing hypertension	100	37	63	37%	63%
10	Being overweight increases risks for hypertension	100	85	15	85%	15%
11	Regular physical activity will lower a person’s chance of getting hypertension	100	36	64	36%	64%
12	Eating more salt has no effect on blood pressure	100	31	69	31%	69%
13	While meat is as good as read meat in hypertension	100	32	68	32%	68%
14	Medication alone can control hypertension?	100	50	50	50%	50%
15	Hypertension can lead to other life threatening disease	100	19	81	19%	81%



**CHART 1: PERCENTAGE RESPONSE OF HYPERTENSIVE PATIENTS KNOWLEDGE**

**Reason for Nonadherence:** 100 patients were asked to understand their reason for nonadherence to the treatment for HBP. 15 universal reasons have been listed and asked the patients to select **Table 2**.

**TABLE 2: AND CHART 2 REPRESENTS REASONS FOR NON ADHERENCE**

S. no.	Reason for non Adherence	Total sample	No. of patients	%
1	Poor knowledge of the disease and ignorance of need for long-term treatment	100	62	62%
2	Religious practices and cultural belief	100	23	23%
3	Adverse drug reactions	100	12	12%
4	Patients do not believe that the health depends on medicine	100	0	0%
5	Worry about having to take medicine or are concerned about the side effects of the medicine	100	0	0%
6	Forgetfulness	100	22	22%
7	Drugs out of supply	100	0	0%
8	Poor communication with physician, insufficient patient information/education	100	0	0%
9	Expenses: Doctor’s fee, transport, medicine, hospitalization	100	29	29%
10	Interruption of daily routine	100	0	0%
11	Lack of reminders	100	0	0%
12	Was busy and or late for work	100	16	16%
13	Was away on weekend or vacation	100	0	0%
14	Too many medication to take	100	0	0%
15	Taking medication wrong time	100	0	0%

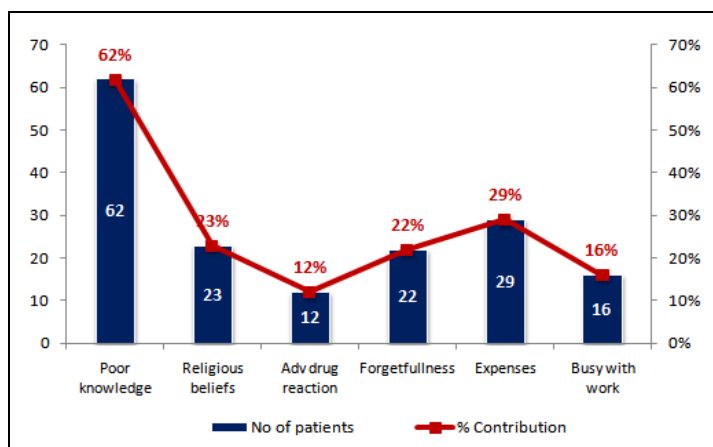


CHART 2: REPRESENT REASONS FOR NON ADHERENCE

Out of 15 reasons, only 6 reasons got one of the responses.

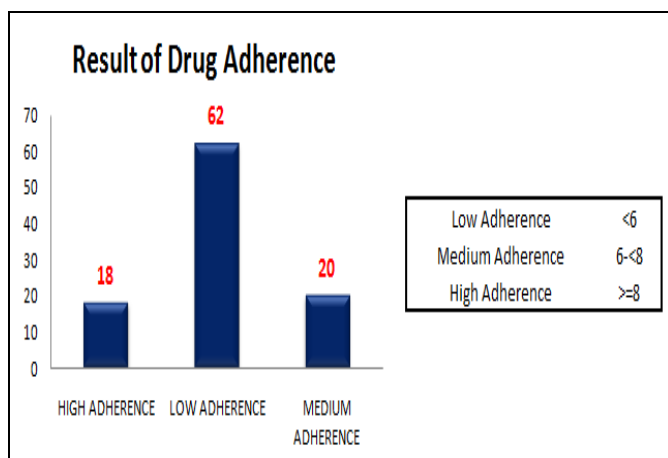
- ❖ Among 100 patients, 62% of the people have not undergone any treatment for high blood pressure due to lack of knowledge about seriousness and effects of the disease.
- ❖ Out of 100 16%, people said they are busy with their work, and 29% felt that the treatment is very expensive and costly that they are not affordable to undergo.
- ❖ 12% also said it might be a possibility for the adverse reaction because of medicine used for this treatment and also due to their poor memory.

From the above questionnaire response, we can conclude that there are two major responses for the nonadherence that is Poor knowledge about the disease and their side effects and also the affordability or the perception towards the treatment expenses.

**Drug Adherence:** The **Table 3** described drug adherence response had been interviewed with 100 patients to know about their seriousness in taking the pills as per doctor’s advice. The questionnaire contains eight questions out of which seven are yes or no questions, and the eighth one is the multiple choice question. The following table and chart represent the drug adherence of the patients <sup>10</sup>.

TABLE 3: REPRESENTS DRUG ADHERENCE SCALE QUESTIONS

S. no.	Drug Adherence Scale Questions	Total no. of patient	Yes	No	%Yes	%No
1	Do you sometimes forget to take your [health concern] pills?	100	36	64	36%	64%
2	People sometimes miss taking their medications for reason other than forgetting. Thinking over the past two weeks, were there any days when you did not take your [health concern] medicine?	100	38	62	38%	62%
3	Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it?	100	58	42	58%	42%
4	When you travel or leave home, do you sometime forget to bring along your [health concern] medication?	100	3	97	3%	97%
5	Did you take your [health concern] medicine yesterday?	100	0	100	0%	100%
6	When you feel like your [health concern] is under control, do you sometimes stop taking your medicine?	100	100	0	100%	0%
7	Taking medication everyday is a real inconvenience for some people. Do you ever feel hassled about sticking to your [health concern] treatment plan?	100	82	18	82%	18%
8	How often do you have difficulty remembering to take all your medication?	100				
	Never/Rarely.....4	100	0		0%	
	Once in a while.....	100	26		26%	
	Sometimes.....2	100	74		74%	
	Usually....1	100	0		0%	



**CHART 3: REPRESENTS DRUG ADHERENCE RESPONSE**

Total Points used to find out the level of adherence is mentioned in the below **Table 4**.

The above **Chart 4** represents 62% of the people are in low adherence, and 35% of the people are in medium adherence; only 3% are in high adherence.

**CONCLUSION:** The current study estimated adequate reasons for disease knowledge and medication non-adherence to be greater than that of unintentional non-adherence.

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**CONFLICT OF INTEREST:** Nil

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