

A Study on Adherence to Therapy among Hypertensives in Urban Slums of Hyderabad

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ABSTRACT

Background information: Chronic non-communicable diseases are posing a serious threat to public health throughout the world, irrespective of whether developed and developing, and thus deserve to be treated as a global health priority in this new millennium. Most common non-communicable diseases are Cardio-vascular diseases, for which uncontrolled hypertension is a risk factor, which is due to poor adherence to anti-hypertensive medication.

Aim: To study the prevalence of adherence to therapy among study population.

Materials & Methods: A Community based cross sectional study was done for One year from November 2015 to October 2016 in Harazpenta. The total sample size was 400 and cluster sampling technique was used. The study subjects were diagnosed Hypertensive subjects who were on treatment for more than 1year. Data entry was done using Microsoft Excel 2007 and analysis done using EPI INFO Version 7.2.1.0

Results: Out of 376 study participants, 232(61.70%) were highly adherent to their anti-hypertensive medication according to Morisky Medication Adherence Scale-8.

Conclusions: More than half of the Hypertensive subjects showed good adherence patterns to their prescribed medications. The Health system should give priority to the low income families and provide free supply of all classes of antihypertensive medicines.

Key words: Adherence, Anti hypertensive medication.

INTRODUCTION

Chronic non-communicable diseases (NCD) are posing a serious threat to public health throughout the world, irrespective of whether developed and developing, and thus deserve to be treated as a global health priority in this new millennium. ^[1] Most common non-communicable diseases are Cardio-vascular diseases (CVD), for which uncontrolled hypertension is a risk factor, which is due to poor adherence to anti-hypertensive medication. Cardiovascular diseases are the leading cause of mortality (29% of all deaths) globally while low and middle income countries make up 82% of

these deaths with almost equal incidence in men and women. ^[2] Uncontrolled Hypertension is the most important risk factor for cardiovascular diseases.

Hypertension is defined as a systolic blood pressure (SBP) ≥ 140 mmHg or/and diastolic blood pressure (DBP) ≥ 90 mmHg among people who are not under antihypertensive medication, thus including those who are already consuming medications for hypertension. ^[3] Hypertension is a major threat to public health globally as it is an important risk factor for morbidity and mortality and silently increases risk for cerebral, cardiac,

and renal events. Globally hypertension takes away about 7.1 million lives every year. [4,5] It has been estimated that about 62% of cerebrovascular disease and 49% of ischaemic heart disease are attributable to systolic blood pressure >115 mmHg. [4]

The poorest of the people are at the highest risk of developing and dying prematurely from chronic diseases as their risk exposure is high where as access to health care services is low: “Chronic diseases and poverty are interconnected in a vicious cycle”. [6] So, this study was taken up to study the pattern of adherence to anti-hypertensive treatment among the urban slum dwellers.

Objectives

1. To study the prevalence of adherence to therapy among Hypertensive subjects in Harazpenta, the urban field practice area of Community Medicine Department, Osmania Medical College, Hyderabad.
2. To study the socio demographic profile of the study population.

MATERIALS AND METHODS

Study area: Present study was carried out in Harazpenta, which is the urban field practice area of Community Medicine Department, Osmania Medical College, Hyderabad.

Hyderabad - is the capital of Telangana, located on the banks of Musi River. Urban Health Center is located at 3 kms from Osmania Medical College. This includes 29 urban areas with total population of 45585. (Source: household register maintained at UHC).

Study Design: This is a community based cross - sectional study.

Study population: Diagnosed Hypertensive subjects who were on treatment for more than 1year.

Study period: Duration of the study period was one year, from November 2015 to October 2016.

Sample Size: Various studies across the World on adherence to anti-hypertensive medication revealed the prevalence between 50% to 74.42%. Taking the lowest i.e. 50%

as the anticipated prevalence of adherence to medication among the Hypertensive subjects with a 95 percent confidence interval the sample size was estimated to be 171. Since the sample selection procedure was cluster sampling a design effect of 2 was used to estimate the final sample size using the following formula.

$$N = \text{design effect} \times \frac{(1.96)^2 (p \times q)^2}{l^2}$$

Where,

- N = Number of eligible participants included in the study
- p = prevalence of adherence to Hypertension treatment
- q = 100 - p
- l = allowable relative error, here taken as 15% of p i.e., 7.5
- design effect, here taken as 2,
- Hence, the sample size is

$$N = 2 \times \frac{(1.96)^2 (50 \times 50)}{(7.5^2)}$$

$$= 342 + 10\% \text{ (attrition)}$$

$$= 376 \text{ rounded of to } 400$$

Estimated sample size is 376 Hypertensive subjects in 30 clusters across Harazpenta area. In each cluster around 14(13.3) Hypertensive subjects were interviewed (400/30=13.3).

Sampling technique: Cluster sampling technique was used.

Procedure:

Step1: Listing of all areas in the Harazpenta, which is the urban field practice area of Community Medicine Department, Osmania Medical College, Hyderabad.

Step2: Cumulative population of each area was determined.

Step3: The sampling interval was determined using the formula:

$$\frac{\text{Total Cumulative Population}}{30 \text{ clusters}}$$

Step4: A random number was then selected which was less than or equal to the sampling interval. This identifies the 1st cluster. By adding the sampling interval to the random number, 2nd cluster was identified.

Subsequent clusters were similarly identified till 30 random clusters were formed.

Selection Criteria: The subjects for the study were selected based on the following criteria, after a written informed consent was obtained following national guidelines.

Inclusion criteria:

- Diagnosed Hypertensive subjects who were on drug treatment for more than 1 year were included in the study.

Exclusion Criteria:

- Children.
- Individuals less than 20 years
- Individuals more than 80 years
- Seriously ill patients
- Individuals who are not willing to give consent.

Ethical Considerations: Ethical clearance was obtained in November 2015 from the Institutional Ethical Committee (IEC), Osmania Medical College, Koti, Hyderabad. The study was started after obtaining the ethical clearance.

Data Collection: Sample size being 400 and selected clusters being 30, total of 14 Hypertensive subjects are selected from each cluster. A central location of the selected cluster was identified with the help of a local person and using the center of the cluster as a starting point; a spin bottle method was used to identify the direction of proceeding for the survey. All consecutive houses on the right side of the road were

visited until the required number of 14 Hypertensive subjects was reached. Diagnosed Hypertensive subjects who were on treatment for more than 1 year are interviewed personally in their local language by using a pre-designed, pre-tested, semi structured and pre-coded proforma which was prepared in consultation with the faculty. The questions were partially closed ended. The duration of the interview, on an average was 20 minutes for each participant. Out of 400, the subjects who were interested in the study were 376. The response rate was 94%.

Variables under the study:

Operational definitions:

Hypertensives: Considered those who self reported with a prescription for Hypertension treatment from a modern medical practitioner.

Measurement of adherence: Based on the scores which were obtained on the Morisky Medication Adherence Scale-8, the subjects were divided into two groups which consists of those with high adherence (score = 0-2), and those with poor adherence (score = 3-8).

Levels of Adherence: High adherence to medication: participants who had a score of 0-2 in the Morisky Medication Adherence Scale (MMAS) were classified as having high adherence.

Low adherence to medication: participants who had a score of 3-8 in the Morisky Medication Adherence Scale.

Table 1: MMAS-8 SCORE: Tool used for assessing the level of adherence.

Sl.no	Question	Score
1.	Do you sometimes forget to take your pills?	1)yes 0)no
2.	People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your medicine?	1)yes 0)no
3.	Have you ever cut back or stopped taking your medicine without telling your doctor because you felt worse when you took it?(side effects)	1)yes 0)no
4.	When you travel or leave home, do you sometimes forget to bring along your medicine?	1)yes 0)no
5.	Did you take all your medicine yesterday?	1)yes 0)no
6.	When you feel like your symptoms are under control, do you sometimes stop taking your medicine?	1)yes 0)no
7.	Taking medicine every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?	0)yes 1)no
8.	How often do you have difficulty remembering to take all your medicine? ___ A. Never/rarely ___ B. Once in a while ___ C. Sometimes ___ D. Usually ___ E. All the time	0)A 1)B/C/D/E.

Data analysis: Data was entered using Microsoft Excel 2010 version and analyzed manually in the initial stages and later by

using Epi-Info version 7.2.1.0. Data was summarized in percentages and proportions.

RESULTS

Table 2: Age and sex wise distribution of Hypertensive subjects in Harazpenta, urban field practice area of Community Medicine Department, Osmania Medical College, Hyderabad:

Age (in years)	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
≤30	0	0	8	3.26	8	2.12
31-40	16	12.21	34	13.8	50	13.2
41-50	32	24.42	59	24.08	91	24.2
51-60	35	26.71	78	31.8	113	30.05
61-70	35	26.71	54	22.04	89	23.6
71-80	13	9.92	12	4.8	25	6.64
Total	131	100	245	100	376	100

Mean age (in years) = 54.48, Standard deviation (SD) ± 11.03

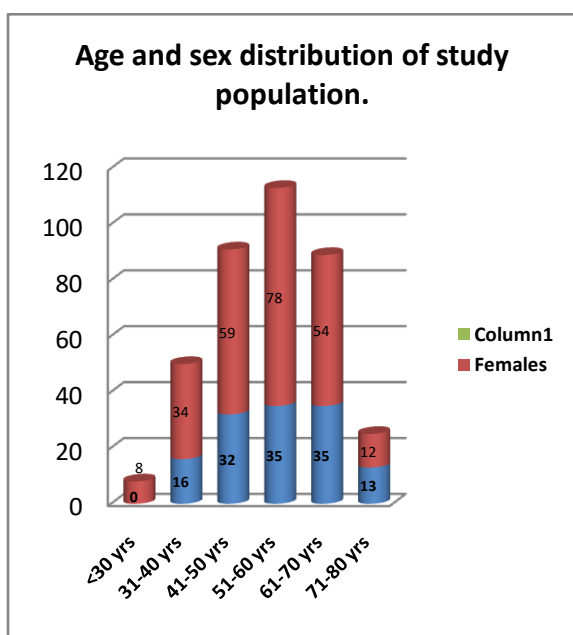


Figure 1: Age and sex distribution of the study population.

Table 3: Socio demographic characteristics of study population:

VARIABLE	NUMBER	PERCENTAGE
RELIGION		
Hindu	310	82.45
Muslim	66	17.45
TYPE OF FAMILY		
Nuclear	171	45.48
Joint	84	22.34
Three Generation	121	32.18
EDUCATION		
Illiterates	244	64.89
Primary School	12	3.19
Secondary School	60	15.96
Intermediate	48	12.77
Graduation & above	12	3.19
OCCUPATION		
Clerical, Shop-owner, Farmer	12	3.19
Skilled & Semi Skilled Worker	49	13.03
Unskilled worker	48	12.77
Unemployed	267	71.01
SOCTO ECONOMIC STATUS – BG PRASADS (APRIL 2016)		
Class I (Upper)	12	3.19
Class II (Upper Middle)	60	15.96
Class III (Lower Middle)	145	38.56
Class IV (Upper Lower)	135	35.90
Class V (Lower)	24	6.38

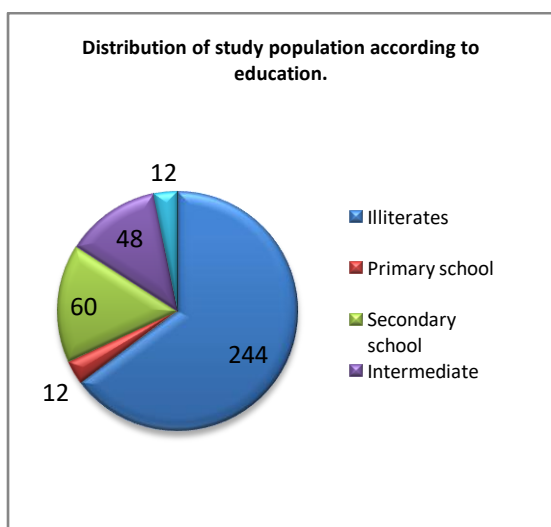


Figure 2: Distribution of study population according to education status.

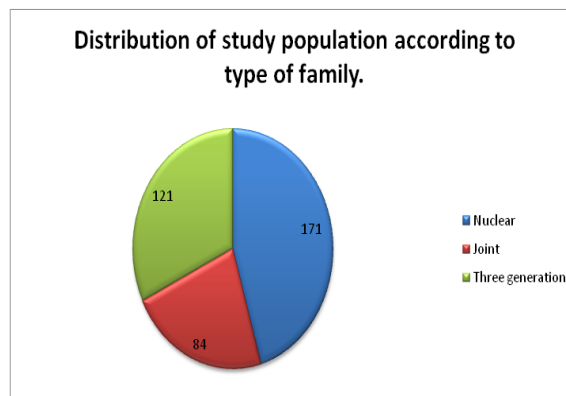


Figure 3: Distribution of study population according to type of family.

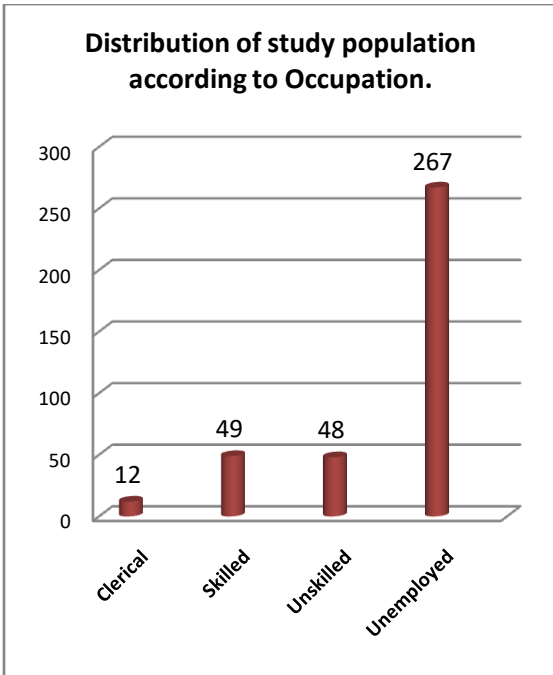


Figure 4: Distribution of study population according to occupation.

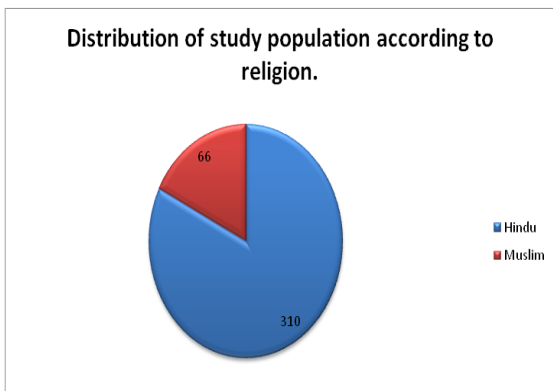


Figure 5: Distribution of study population according to religion.

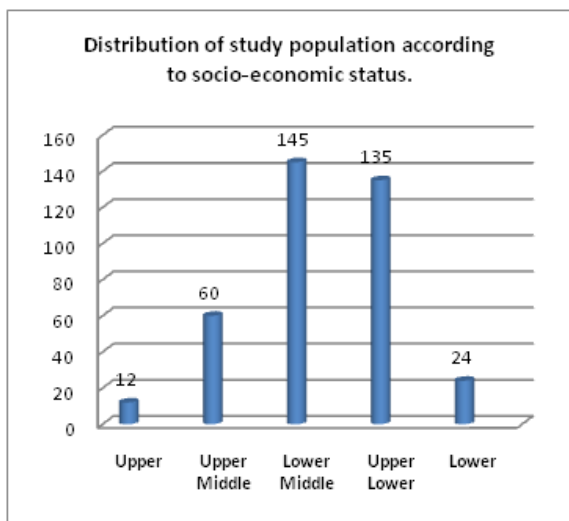


Figure 6: Distribution of study population according to socio-economic status.

Table 4: Prevalence of adherence to medication according to study population:

Adherence to medication	Number	Percent
Good	232	61.70
Poor	144	38.30
Total	376	100

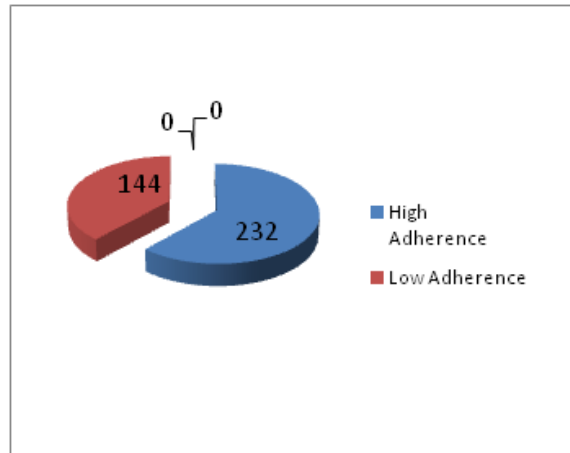


Figure 7: Prevalence of adherence to medication among study population according to Morisky Medication Adherence Scale-8.

DISCUSSION

Socio demographic variables:

It was observed that majority (56.76%) were in the age group of 51-60 with mean age of 54.48 and Standard deviation (SD) \pm 11.03. Similar observations were found in study by Saman K. Hashmi et al., [7] in Pakistan where mean age was 54 with Standard deviation (SD) \pm 10. The present study observed that 65.1% were females, 34.8% were males. This is in concurrence with study done by Babu Rao et al (2014) [8] in Hyderabad, where 59.1% were females and 40.9% were males. Similar observations were found in study in Cameroon by Alain Menanga et al [9] where majorities (63.6%) of the study population were females. With regards to religion among study population, majority 82.45% belonged to Hindu religion followed by 17.55% Muslims. In the present study majority (64.89%) were illiterates and 35.10% were literates. It was observed in the present study that 64.62% were married and 35.37% were single. With regards to socio economic status of the respondents, majority (38.56%) belonged to lower middle class followed by 35.90% to upper lower class and 15.96% to upper middle class

followed by 6.38% to lower and 3.19% to upper class.

Prevalence of adherence to medication:

In the present study among the Hypertensive population medication adherence to their anti-hypertensive medication was found to be 61.70%.

A cross sectional descriptive study was conducted by Srivastava AK (2015) [10] et al., in rural area of district Dehradun revealed that Adherence to antihypertensive therapy was 73%. Bhandari B et al (2015) [11] community based study in Nepal observed that 56.5% of the population were adherent to prescribed anti- Hypertensive medication. Dr.Babu Rao et al (2014) [8] study in urban slums of Hyderabad observed that 60.6% were considered adherent to the prescribed anti- Hypertensive medication. Fiseha Girma et al (2014) [12] study in South West Ethiopia revealed that compliance with antihypertensive medication was present in 55.7% of patients. A study by Emmanuel N Tufon et al (2014) [13] in Cameroon showed that the overall level of adherence of patients to antihypertensive treatment was high (80.0%; SD = 4.08). A study was conducted in Tikur Anbessa specialized Hospital renal unit in Addis Ababa, Ethiopia by Habtamu Abera Hareri et al (2012) [14] concluded that 69.2% of the study participants were adherent to medication. A study by Ramli et al (2012) [15] in Malaysia showed that the overall level of adherence in patients to antihypertensive treatment was 53.4%. A study by Ambaw et al (2012) [16] in Ethiopia showed that 64.6 % of the study participants were adherent to their treatment. A study by Subhasis Bhandari (2011) [17] in urban slums of Kolkatta showed that that Prevalence of adherence was found to be 73% (95% CI 68-78%). A study by Dr. Dennis Thomas et al (2011) [18] in Bangalore concluded that 50.3% were adherent to anti-hypertensive medication.

CONCLUSIONS

The Health system should give priority to the low income families and

provide free supply of all classes of antihypertensive medicines. Recently detected hypertensive patients should be closely monitored for adherence to their prescribed antihypertensive medications. Hypertensive patients living in larger families in slums should be monitored closely for adherence. Further studies may be conducted to find out the reasons for inadequate control of hypertension among those who were adherent

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Conflicts of Interest: None

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