

Original article:

Adherence to medication among Hypertensive patients attending a tertiary care hospital in Guntur, Andhra Pradesh

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Abstract:

Background: Hypertension, also known as high or raised blood pressure, is a global public health issue. Among the top 10 leading causes of death in the world, Hypertensive heart disease is at tenth place with an estimated 1.1 million deaths worldwide in 2012. Poor adherence to anti-hypertensive therapy is usually associated with bad outcome of the disease and wastage of limited health care resources.

Objectives: To determine the prevalence of adherence to medication and to find out the factors related to it among Hypertensive patients attending Government General Hospital, Guntur, Andhra Pradesh.

Material & Methods: This was an institutional based cross sectional study where 400 hypertensive patients were selected using systematic random sampling. After obtaining informed consent, subjects were personally interviewed with a pre-designed pre tested questionnaire. Questionnaire contained data related to socio-demographic information; questions related to adherence to anti-hypertensive medication which was measured using a eight item Morisky Medication Adherence Scale (MMAS). Data entry was done by Microsoft Excel 2007 and analysis by SPSS version 17.

Results: The overall adherence of study population among study population was 15.3% (n=61). Adherence was found to be higher in 50 years & above age group (46.6%) and among females (51.6%). Similarly, adherence was more among those who belonged to nuclear families (47.1%) and among literates (44.2%).

Conclusions: A very low adherence level was observed in the study which needs to be stressed and improved through health education.

Keywords: Hypertension, Adherence, Morisky Medication Adherence Scale (MMAS)

Introduction:

Currently developing countries, especially India, are in a transitional phase, an epidemiological transition from a phase of predominantly infectious disease burden to a phase of triple burden of infectious

diseases, chronic non-communicable diseases, and injuries largely due to demographic, lifestyle, nutritional and environmental changes.^[1]

According to World Health Organization (WHO) 2011 estimates on Non Communicable diseases

(NCDs) in India, NCDs were estimated for about 53% of all deaths. High blood pressure (BP) is a major public health problem in developing countries around the world and is one of the most important modifiable risk factor for cardiovascular diseases (CVDs).^[2]

It contributes to the burden of heart disease, stroke and kidney failure and premature mortality and disability. It disproportionately affects populations in low- and middle-income countries where health systems are weak.^[3] Hypertension rarely causes symptoms in the early stages and many people go undiagnosed.

The increasing prevalence of hypertension is attributed to population growth, ageing and behavioural risk factors, such as unhealthy diet, harmful use of alcohol, lack of physical activity, excess weight and exposure to persistent stress.^[3]

There are effective medical therapies for hypertension management. Poor adherence to anti-hypertensive therapy is one of the biggest obstacles in therapeutic control of high blood pressure.

It also compromises the efforts of the health care system, policy makers and health care professionals in improving the health of populations.^[4] Failure to adhere causes medical and psychological complications of the disease, reduces patients' quality of life, wastes health care resources and erodes public confidence in health systems.^[5]

Aims & Objectives:

- (1) To measure the adherence to medication among Hypertensive patients attending a tertiary care hospital in Guntur, Andhra Pradesh.
- (2) To determine the demographic factors associated with it.

Material & Methods:

Study design: It was an institutional based cross sectional study done in Government General Hospital which is a tertiary care hospital located in Guntur, Andhra Pradesh.

Study population: Inclusion criteria: Persons aged 20 years & above diagnosed with hypertension or on anti hypertensive treatment for more than six months and those who have given informed consent.

Exclusion criteria: persons with severe chronic illness and pregnant & lactating women were excluded from the study.

Sample size: As there was no previous data, proportion was taken as 50%, margin of error 5% and 95% confidence interval. Based on the formula $n = Z^2 PQ / l^2$ (P is proportion, Q is 100-P, l is margin of error), sample size was 384 which was rounded off to 400.

Sampling technique: Sample was selected randomly from patients who were attending the out-patient department of the hospital. Systematic random sampling technique was used in selecting the patients meeting the inclusion criteria.

Study duration: 3 months from September 2014 to November 2014.

Data Collection: After obtaining informed consent, subjects were personally interviewed with a pre-designed pre tested questionnaire. Questionnaire contained data related to socio-demographic information; questions related to adherence to anti-hypertensive medication which was measured using a eight item Morisky Medication Adherence Scale (MMAS)^[6] which was translated into the local language. Three levels of adherence were considered based on the following scores: 0 to <6 (low); 6 to <8 (medium); 8 (high).

Statistical analysis: Data entry was done by Microsoft Excel 2007 and analysis by SPSS version 17. Descriptive statistics were used to describe demographic characteristics of the patients and their adherence score. The Chi square (χ^2) test was employed for categorical variables. The significance level was set at p less than 0.05.

Results:

Socio-demographic characteristics

It was observed that majority (31.5%) were in the age group of 41-50 years, 52.2% were males; majority (72%) belonged to Hindu religion; 35% were illiterates; 84% were married and 65.4% belonged to below poverty line.

Adherence to therapy:

Based on MMAS, adherence to antihypertensive therapy was measured.

Table 1: Categories of adherence to anti hypertensives based on MMAS scale

MMAS Category	Frequency	Percentage
Low adherence (0 to <6)	248	62%
Medium adherence (6 to <8)	91	22.7%
High adherence (8)	61	15.3%
Total	400	100%

Among the study population, adherence to anti hypertensive medication based on 8 point MMAS scale found that high adherence (MMAS 8) was found only in 15.3% (n=61).

Majority of the study population (62%, n=248) had low adherence to medication followed by medium adherence in 22.7% (n=91).

Association between socio-demographic variables and adherence:

For the purpose of further analysis, lower adherence category was merged with medium and compared with high adherence category. Score 8 on scale was categorized as 'high adherence', those who scored below 8 as 'low adherent'.

Adherence was found to be higher in 50 years & above age group (46.6%) and among females (51.6%). Similarly, adherence was more among those who belonged to nuclear families (47.1%) and among literates (44.2%). This could be due to more concern for health in old group compared with younger age group, support from the life partner in the nuclear families due to stronger intimacy and knowledge regarding complications in literates.

No significant association was found between religion, marital status and socio economic status.

Adherence was found more to be in subjects whose frequency of medication is only once a day (46%) and only one medicine for treatment of hypertension (48.2%).

Table 2: Association between demographic characteristics and adherence to medication

Adherence categories	Low adherence Score <7 (%)	High adherence Score = 8(%)	Odds ratio (95% CI)	P value
Age				
50 years & below	186 (65.5)	98 (34.5)	1.653	0.01
Above 50 years	62 (53.4)	54 (46.6)		
Sex				
Male	155 (74.5)	53 (25.5)	3.113	<0.001
Female	93 (48.4)	99 (51.6)		
Religion				
Hindu	175 (60.8)	113 (39.2)	0.8274	0.41
Others	73 (65.2)	39 (34.8)		
Marital status				
Married	204 (60.7)	132 (39.3)	0.7025	0.22
Divorce/widow	44 (68.7)	20 (31.3)		
Family type				
Nuclear	126 (52.9)	112 (47.1)	0.3689	<0.001
Joint/extended	122 (75.3)	40 (24.7)		
Literacy status				
Illiterates	103 (73.6)	37 (26.4)	2.208	<0.001
Literates	145 (55.8)	115 (44.2)		
Socio-economic status				
Lower	155 (59.6)	105 (40.4)	0.746	0.09
Upper	93 (66.4)	47 (33.6)		
Frequency of medication				
Once a day	134 (54)	114 (46)	0.3918	<0.001
More than once a day	114 (75)	38 (25)		
No of medicines for				

hypertension (per day)				
One	127 (51.8)	118 (48.2)	0.3024	<0.001
Two or more	121 (78)	34 (22)		

P<0.05 was considered statistically significant

Discussion:

Adherence to any medication is always crucial in control of diseases more specifically for chronic diseases and identifying the factors which determine the adherence can have significant impact on treatment outcomes. The overall prevalence of adherence to antihypertensive medication in the present study was 15.3% as compared with a study done in Tamil Nadu where the adherence was 24.1%.^[7]

Similar studies done in Ethiopia ^[8] and Malaysia ^[9] observed a high rate of adherence to therapy at 64.6% and 48.7% respectively. These differences could be due to differences in socio demographic profile.

Present study found that demographic characteristics had definite influence on the adherence to therapy. Age, sex, type of family, literacy status had significant association with adherence to therapy (P<0.05). Similar study done Aarti M Nagarkar et al (2013)^[10] in a tertiary care hospital in Pune, found that Medication adherence was significantly associated with age, family type and experience of symptoms. Gender, education, frequency and number of medication did not show any association.

A community-based cross-sectional study done by Venkatachalam J et al (2015)^[7] in Tamil Nadu found that age, sex, marital status, religion and caste had no significant association with the adherence.

The frequency and number of medicines per day also had an impact on the adherence level. Those who had to take medication only once a day and only one medicine for hypertension per day had better adherence compared with other group (P<0.001). In contrast to these findings, study by Aarti M Nagarkar et al (2013)^[10] found that frequency and number of medicines per day had no significant association with adherence.

Limitations: Since it's a hospital based study, the findings of the study cannot be generalized to whole population and there is possibility of recall bias.

Conclusions: This study concludes that the prevalence of adherence to medication was low in the study population. Some of the demographic characteristics had significant influence on adherence. Imparting health education and counseling at the time of visit to hospital by health care personnel and home visits by health workers can improve the adherence level which is vital for control of chronic diseases.

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