Adherence to hypertensive treatment among patients coming to rural health and training centre of a medical college: A cross sectional study

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Abstract
Introduction: Aim of the study was to assess the extent of adherence to anti hypertensive medications and to assess various socio demographic and other risk factors influencing adherence among the hypertensive patients attending rural health centre in Telangana.
Materials and Method: Total of 170 hypertensive patients who have visited rural health centre between November 2017 to March 2018 were interviewed to assess the extent of adherence to anti hypertensive medications.
Result: 53% of study population were females and majority (36.4%) belong to 56-65 years of age group.70% of study population were illiterates and most (64.2%) of the subjects belong to lower middle socio economic status. Majority (55.9%) of study population has to travel >0.5 hour from the rural health centre. 50% of the patients showed high adherence. Females (61.1%) were significantly more adherent to medication compared to males(37.5%). High adherence was observed among housewives(70.6%), lower class(57.1%) and widowed(57.9%), those who need to travel for <0.5hr. Study population with the comorbities (56.5%) were more adherent. Persons with both familial history and no familiar history have same adherence
Conclusion: Only half of the study subjects were found to be adherent to their treatment. In the current study it was observed that sex, employment status, religion and distance from RHTC were significantly associated with the adherence to treatment. Study population with the comorbidties, with habits like smoking and tobacco chewing were more adherent.

Keywords: Adherence, Rural health centre, Medication, Co-morbidities, Time, Tobacco.

Introduction

Hypertension is an overwhelming global challenge which ranks third as a cause of disability adjusted life years.[1] Hypertension is a major cause of cardiovascular and cerebrovascular diseases.[2] According to WHO,CVDs take the life of 17.7 million people every year , that is 31% of all global deaths and > 75% of CVD deaths occur in low income and middle income countries.[3] According to The National Family Health Survey -4 the prevalence of hypertension in India higher in urban when compared to rural areas. Among women the prevalence was 8.8% while men 13.6%.[4]

Adherence is defined by WHO as "The extent to which a person's behavior- taking medication following a diet and/or executing lifestyle changes corresponds with agreed recommendations from a health care provider".[1] Poor adherence leads to bad outcome of disease and wastage of healthcare resources.[1] 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. Failure to adhere causes medical and psychological complications of the disease, reduces patients' quality of life, and erodes public confidence in health systems.[5]

We undertook this study with the objective of studying the extent of adherence to anti hypertensive medications and to assess various socio demographic and other risk factors influencing adherence.

Materials and Method
Study design: Institutional based Cross sectional study.
Study setting: Rural Health Training Centre (RHTC) of Kamineni institute of Medical Sciences, Telangana
Study period: four months from November 2017 to March 2018.
Study population: All patients who were diagnosed with hypertension atleast 1 year back
Inclusion Criteria: subject should be residing in the rural field practice area for at least one year and they should be able to provide information about medications in use.
Exclusion Criteria: Those not giving consent and not willing to participate.
Sample size: A total of 210 patients had visited RHTC during the 4 months period and only 170 agreed to participate in the study.
Study tool: A pre tested semi structured questionnaire was used to collect the data. Adherence was assessed using Morisky Medication adherence Scale (MMAS)-8[6] which is a screening tool in identifying non adherent patients. It is an 8 part questionnaire with score from 0 to 8. Score 0 is considered as high adherence, score 1-2 is considered medium adherence and score 3-8 based as low adherence.
Procedure of Data Collection: After obtaining informed consent from the study subjects and explaining them the importance of study, data was collected by administering questionnaire.

Confidentiality regarding the participant response for the questions was ensured.

Analysis of data

Data was entered in Microsoft excel and analysis was done using SPSS statistical package version 22. Chi square test was used to calculate the significance.

Result

53% of study population were females and majority (36.4%) belong to 56-65 years of age group and were housewives (30%). Majority (70%) of study population were illiterates, belong to lower middle socio economic status (64.2%), were married (75.8%) and were hindus (91.7%). Majority of study population has to travel >0.5 hour from the RHTC (55.9%). (Table 1)

50% of the patients showed high adherence and only 12.4% showed low adherence. (Table 2)

Females(61.1%) were more adherent to medication compared to males(37.5%) and this difference was statistically significant. Adherence was more among 56-65(54.8%) years of age group than other age groups and this difference was not statistically significant. (Table 3)

It was observed that housewives(70.6%) were more adherent than other employment groups and the difference was statistically significant. Illiterates(53.8%) were more adherent to the treatment compared to literates and the difference was not statistically significant. (Table 4)

Lower class(57.1%) and widowed(57.9%) people were more adherent compared to other groups and the differences was not statistically significant. (Table 5)

Hindus (51.9%) were more adherent to the treatment than others and those who need to travel for <0.5hr from RHTC (54.7%) were more adherent than who need to travel >0.5hr from RHTC. These differences were statistically significant. (Table 6)

Study population with the comorbities (56.5%), with habits like smoking and tobacco chewing (56.5%) were more adherent. People without alcohol consumption were more adherent (50.4%) and persons with both familial history and no familial history have same adherence. These differences were statistically not significant. (Table 7)

Table 1: Socio Demographic Profile of study population (n=170)

Variable		Frequency	Percentage
Sex	Male	80	47
	Female	90	53
Age (years)	35-45	18	10.5
	46-55	31	18.2
	56-65	62	36.4
	66-75	41	24.4
	>75	18	10.5
Employment Status	Government	1	0.5
	Merchant	38	22.3
	Housewife	51	30
	Farmer	40	23.6
	Retired	40	23.6
Education	Illiterate	119	70
	Literate	51	30
Socio Economic Status	Upper	0	0
	Upper middle	3	1.7
	Middle	16	9.4
	Lower middle	109	64.2
	Lower	42	24.7
Marital Status	Single	3	1.7
	Married	129	75.8
	Divorced	0	0
	Widowed	38	22.5
Religion	Hindu	156	91.7
	Muslim	12	7
	Christian	2	1.3
	Others	0	0
Time to reach RHTC	<0.5 hour	75	44.1
	>0.5 hour	95	55.9

Table 2: Distribution of study population according to the extent of adherence to antihypertensive medication (n=170)

Adherence	Number of study subjects (%)
High	85 (50)
Medium	64 (37.6)
Low	21 (12.4)
Total	170 (100)

Table 3: Comparison of Age and Sex with extent of adherence (n=170)

Variable		High adherence	Medium adherence	Low adherence	Total	p value
Sex	Male	30(37.5%)	37(46.2%)	13(16.2%)	80(100%)	0.008
	Female	55(61.1%)	27(30%)	8(8.9%)	90(100%)	
Age (years)	35-45	8(44.4%)	7(38.9%)	3(16.7%)	18(100%)	0.951
	46-55	15(48.4%)	13(41.9%)	3(9.7%)	31(100%)	
	56-65	34(54.8%)	22(35.5%)	6(9.7%)	62(100%)	
	66-75	21(51.2%)	14(34.1%)	6(14.6%)	41(100%)	
	>75	7(38.9%)	8(44.4%)	3(16.7%)	18(100%)	

Table 4: Comparison of employment status and education factors with extent of adherence (n=170)

Variable		High adherence	Medium	Low	Total	p value
Employment Status	Government	0	1(100%)	0	1(100%)	0.014
	Merchant	14(36.8%)	19(50%)	5(13.2%)	38(100%)	
	Housewife	36(70.6%)	14(27.4%)	1(20%)	51(100%)	
	Farmer	16(40%)	15(37.5%)	9(22.5%)	40(100%)	
	Retired	19(47.5%)	15(37.5%)	6(15%)	40(100%)	
Education	Illiterate	64(53.8%)	41(34.5%)	14(11.7%)	119(100%)	0.868
	Literate	21(42%)	23(46%)	7(14%)	51(11.7%)	

Table 5: Comparison of socio economic status and marital status with extent of adherence (n=170)

Variable		High adherence	Medium adherence	Low adherence	Total	p value
Socio economic status	Upper	-	-	-	-	0.601
	Upper middle	2(66.7%)	1(33.3%)	0	3(100%)	
	Middle	9(56.2%)	5(31.2%)	2(12.5%)	16(100%)	
	Lower middle	50(45.9%)	42(38.5%)	17(15.6%)	109(100%)	
	Lower	24(57.1%)	16(38.1%)	2(4.8%)	42(100%)	
Marital status	Single	1(33.3%)	2(66.7%)	0	3(100%)	0.443
	Married	62(48.1%)	52(40.3%)	15(11.6%)	129(100%)	
	Divorced	-	-	-	0	
	Widowed	22(57.9%)	10(26.3%)	6(15.8%)	38(100%)	

Table 6: Comparison of religion and distance from RHTC with extent of adherence (n=170)

Variable		High adherence	Medium adherence	Low adherence	Total	p value
Religion	Hindu	81(51.9%)	56(35.9%)	156(100%)	156(100%)	0.001
	Muslim	4(33.3%)	8(66.7%)	12(100%)	12(100%)	
	Christian	0	0	2(100%)	2(100%)	
	Others	-	-	-	-	
Time to reach RHTC	<0.5 hr	41(54.7%)	31(41.3%)	75(100%)	75(100%)	0.013
	>0.5 hr	44(46.3%)	33(34.7%)	95(100%)	95(100%)	

Table 7: Association of risk factors with adherence (n=170)

Variable		High adherence	Medium adherence	Low adherence	Total	p value
Comorbidities	Present	30(56.5%)	19(35.8%)	4(7.5%)	53(100%)	0.337
	Absent	55(47%)	45(38.5%)	17(14.5%)	117(100%)	
Familial H/o	Present	11(50%)	6(27.3%)	5(22.7%)	22(100%)	0.232
	Absent	74(50%)	58(39.2%)	16(10.8%)	148(100%)	
Smoking/tobacco chewing	Present	13(56.5%)	8(34.8%)	2(8.7%)	23(100%)	0.751
	Absent	72(49%)	56(38.1%)	19(12.9%)	147(100%)	
Alcohol Addiction	Present	17(48.6%)	12(34.3%)	6(17.1%)	35(100%)	0.616
	Absent	68(50.4%)	52(38.5%)	15(11.1%)	135(100%)	

Discussion

This study was an institutional based cross sectional study conducted between november 2017 to march 2018. Current study shows that 53% of study population were females, majority belong to 56-65 years (36.4%) of age group and were housewives (30%). Majority of study population were illiterates (70%), belong to lower middle socio economic status (64.2%), were married(75.8%) and were hindus(91.7%). Majority of study population were staying >0.5KM from the RHTC (55.9%). Similar results were observed in the study conducted by Khwaja M et al[7] that majority were males, hindus, married, illiterates.

Only 50% of the study subjects were found to be adherent to their treatment. Similar results were observed in the study conducted in by Shruti R et al[8] where the adherence was 45.41%. Current study results were lower when compared to the observation of Ambaw AD et al[5] study in which 64.6% of study population were adherent and in Hashmi SK et al[1] study which showed adherence among 77% of study population. This is probably because of the difference in study setting and variations in assessment tool for adherence. Contradictory results were observed in Khwaja M et al[7] study in which 23.7% of study population showed medium adherence.

In the current study it was observed that sex, employment status, religion and distance from RHTC were significantly associated with the adherence to treatment. People living far away from the health centre found it difficult to adhere to the medication, even though it was offered free may be because of the long distance which delayed them from coming for regular follow up and regular refill of medication when they got over.

In the study conducted by Ambaw AD et al[5], significant association was found between adherence and sex, time taken to travel is <0.5 h from the hospital, having no or one co-morbidity, having controlled BP, being knowledgeable about HTN. Similar results were observed in the study conducted by the Inkster ME et al[9] that distance from the hospital was another variable found to be significantly with adherence.

In a study done by Rao CR et al,[2] age was a variable which had significance with adherence and they described that most of the elderly may have difficulty in remembering to take medication regularly. With increased age, they might have co morbid conditions for which they might be taking medications so that might lead to confusion and thereby decreased adherence. Compliance to hypertension treatment was better among females as compared to males and this difference was noted to be statistically significant.

In the studies conducted by Sweileh WM et al,[10] Al-Mehza AM et al[11] and Kumar PN et al[12] women were found to be more compliant to treatment than men which is similar to the findings of our study. In another study done by Shruthi R et al,[8] educational status was found to be significant. With better education comes better knowledge and better attitude towards disease.

In the current study, study population with the comorbities (56.5%), with habits like smoking and tobacco chewing(56.5%) were more adherent. People without alcohol consumption were more adherent (50.4%) and persons with both familial history and no familial history have same adherence. These differences were statistically not significant. This can be explained by the fact men can be subject to addictions like alcohol and heavy manual labour which can lead to non adherence. Contradictory results were observed in the study conducted by Khwaja M et al[7] and Shruthi R et al[8] comorbities significantly associated with adherence. In the study conducted by Oliveira AD et al,[13] it was found that nonsmokers (23%) and nonalcoholics (21.3%) were more adherent.

Conclusion

Only half of the study subjects were found to be adherent to their treatment. In the current study it was observed that sex, employment status, religion and distance from RHTC were significantly associated with the adherence to treatment. Study population with the comorbidties, with habits like smoking and tobacco chewing were more adherent. People without alcohol consumption were more adherent and persons with both familial history and no familial history have same adherence. These differences were statistically not significant.

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