

THE EFFECT OF HEALTH LITERACY ON KNOWLEDGE ABOUT MANAGEMENT OF HYPERTENSION AMONG PATIENTS WITH HYPERTENSION IN A SELECTED HOSPITAL OF TAMILNADU.

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Abstract: Hypertension is a silent killer that can, over time, damage the blood vessel walls and increases the person's risk of cardiovascular diseases such as myocardial infarction, nephropathy, retinopathy, stroke, coronary heart disease and other complications. Assessment of knowledge is a crucial element of hypertension control, but little information is available from developing countries. This study has been undertaken to assess the effect of health literacy on knowledge about management of hypertension among patients with hypertension. One group pre-test and post-test quasi experimental study was conducted at Non-Communicable Diseases (NCDs) outpatients department of the Government hospital, Tamilnadu. A total of 50 hypertensive patients between 20 and 70 years of age were selected by using simple random sampling technique. The data were gathered by structured interview schedule using a structured questionnaire. Health literacy was given to the study participants on knowledge about management of hypertension. The study found that out of 50 subjects, 28 (56%) were males. The majority of subjects (62%) belonged to rural areas and 90% subjects were Hindu. Fifteen patients (30%) had middle school education and only 4% were graduates. The majority of them (42%) were farmers and 20% patients were housewives. Fifteen patients (30%) had the family history of hypertension. Thirty two patients (64%) had inadequate knowledge and 13 (26%) of them had moderately adequate knowledge and only 10% had adequate knowledge in the pretest. After two weeks of health literacy, the majority of the patients with hypertension had (62%) adequate knowledge and 19 (38%) had moderately adequate knowledge. Paired "t" test was applied to compare pre and post-test mean knowledge scores, this result was statistically highly significant at P<0.01 level. There was no significant association between knowledge and the demographic variables except residence and education in the pretest. We suggest that most of the patients had a lack of knowledge about management of hypertension is the main cause of uncontrolled higher blood pressure and development of cardiovascular diseases. There is a need for regular health literacy, it will improve the knowledge about management of hypertension and thereby helpful in following healthy practices.

Key words: Health literacy, knowledge, hypertension, patients.

I.INTRODUCTION

“Education is the most powerful weapon which you can use to change the world”.

-Nelson Mandela (1918-2013)

Hypertension is an iceberg disease. It is one of the major risk factors for cardiovascular mortality, which accounts for 20 – 50 % of all deaths⁷. Over the last few decades, hypertension emerged as a major public health problem worldwide and identified as the most common risk factor for cardiovascular diseases¹³.

Globally, the overall prevalence of raising blood pressure in adults aged 18 and over was around 22% in 2014 and it was approximately 20% among Indian adults^{13, 14}. Many risk factors have been identified for hypertension¹¹. One of the important elements in the hypertension control is early diagnosis¹¹. Even the epidemiological studies have indicated rising prevalence of hypertension in both rural and urban settings of India^{6, 12}.

II. STATEMENT OF THE PROBLEM

The effect of health literacy on knowledge about management of hypertension among patients with hypertension in a selected hospital of Tamilnadu.

III. OBJECTIVES

1. To assess the pretest knowledge about management of hypertension among patients with hypertension.
2. To evaluate the effect of health literacy on knowledge about management of hypertension among patients with hypertension.
3. To associate between specific demographic variables (age, gender, residence, education, family history of hypertension and duration of illness) with pretest and posttest knowledge of patients with hypertension.

IV. HYPOTHESIS

The posttest knowledge score will be significantly higher than the pretest knowledge score of patients with hypertension.

V. METHODOLOGY

5.1 Research design

One group pretest-posttest quasi experimental design was chosen for this study.

5.2 Setting of the study

This study was conducted at Non-Communicable Diseases outpatient department of the Government hospital, Cuddalore, Tamilnadu.

5.3 Population

Both male and female patients, those who were diagnosed to have hypertension and not having any complications during the study period and getting anti hypertensive drugs were taken as the study population.

5.4 Sampling technique

The simple random sampling technique was adopted to select the subjects for the study. Per day five patients were selected by using the lottery method from February 2016 and March 2016.

5.5 Sample size

A total sample of 50 male and female patients with hypertension who met the inclusion criteria were selected using simple random sampling technique.

VI. CRITERIA FOR SAMPLE SELECTION

6.1 Inclusion criteria

1. Patients who had been diagnosed to have hypertension.
2. Patients with hypertension who had been attending NCDs out patient department regularly.
3. Patients with hypertension who were able to understand and communicate in Tamil.
4. Patients with hypertension who were willing to participate in the study.
5. Patients with hypertension between 20 and 70 years of age.
6. Patients from both genders.

6.2 Exclusion criteria

1. Patients with hypertension who were having complications due to hypertension during the study period.
2. Patients with hypertension those who were admitted in the hospital.
3. Patients with hypertension those who were having a hearing impairment.
4. Mentally ill hypertensive patients.

VII. ETHICAL CONSIDERATION

Ethical clearance was obtained from the Institutional Human Ethical Committee, Rajah Muthiah Medical College, Annamalai University for conducting the study. Formal permission was obtained from the Joint Director of the Government hospital, Cuddalore, Tamilnadu. Participants were given information about the purposes of the study. Consent was obtained before interviewing the participants and the information were kept confidentially.

VIII. DESCRIPTION OF THE DATA COLLECTION INSTRUMENT

The tool used for collection of data was structured interview questionnaire and it was organized into two parts:

Part I: Demographic data. It consisted of name, age, gender, religion, education, occupation, family income, marital status, family history of hypertension, sources of information on hypertension and duration of illness.

Part II: The knowledge questionnaire about management of hypertension among patients with hypertension. Structured questions were prepared by the researcher to assess the knowledge. The items were related to cause, risk factors, signs and symptoms, investigations, managements and complications of hypertension. It consisted of 30 questions. Each correct answer, a score of one was given and a wrong answer was scored as zero. The total score of knowledge was 30. The total knowledge score was interpreted as below.

Below 50%	-	Inadequate knowledge
51% - 75%	-	Moderately adequate knowledge
Above 75%	-	Adequate knowledge

IX. DATA COLLECTION PROCEDURE

The main study was conducted between February 2016 and March 2016. The patients were selected by using a simple random sampling technique at NCDs Out Patients Department (OPD) of the Government hospital, Cuddalore, Tamilnadu. The pretest was conducted after obtaining consent from the participants. The demographic data were collected. Pretest questionnaire was administered to the participants and the level of knowledge was assessed. On the same day after the pretest, the sample was gathered and seated comfortably at the NCDs OPD. Per day five patients were selected and patients were given health literacy on knowledge about management of hypertension. After health literacy, the researcher informed the date and time of the

posttest interview schedule. After two weeks of health literacy, the posttest was conducted using the same questionnaire.

X. ANALYSIS AND FINDINGS

The data collected from hypertensive subjects were analyzed using descriptive statistical methods like percentage, mean and standard deviation and inferential statistics like Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA). The data were presented in tables and illustrated as diagrams.

Table 10.1: Distribution of Demographic Characteristics of Management of Hypertension

N=50

S.No	Demographic variables	Number	Percentage
1	Age	20 – 30 years	0 00.0
		31 – 40 years	6 12.0
		41 – 50 years	11 22.0
		51 – 60 years	15 30.0
		61 – 70 years	18 36.0
2	Gender	Male	28 56.0
		Female	22 44.0
3	Residence	Rural	31 62.0
		Urban	19 38.0
4	Religion	Hindu	45 90.0
		Christian	2 4.0
		Muslim	3 6.0
		Others	- -
5	Educational status	No formal education	10 20.0
		Primary school education	9 18.0
		Middle school education	15 30.0
		High school education	7 14.0
		Higher secondary education	7 14.0
		Graduate	2 4.0
6	Occupation	Farmer and Coolie	21 42.0
		Housewives	20 40.0
		Others	9 18.0
7	Income/month	Below Rs. 5000	24 48.0
		Rs. 5001 – Rs. 10000	13 26.0
		Rs. 10001 – Rs. 15000	7 14.0
		Above Rs. 15000	6 12.0
8	Marital status	Married	43 86.0
		Unmarried	3 6.0
		Divorced / separated	3 6.0
		Others	1 2.0
9	Family history of hypertension	Present	15 30.0
		Absent	35 70.0
10	Source of health information	Health care member	24 48.0
		Mass media	11 22.0
		Friends and relatives	9 18.0
		None	6 12.0
11	Duration of illness	1 – 5 years	40 80.0
		6 – 10 years	10 20.0
		11 – 15 years	- -
		Above 15 years	- -

Table 10.1 shows the percentage of distribution of hypertensive patients' demographic variables with regard to age. Eighteen patients (36%) belonged to age group of 61-70 years, 15 (30%) belonged to age group of 51-60 years. Twenty eight (56%) were male and 22 (44%) were female. The majority of them (62%) had residences in rural areas, 19 (38%) of them had residences in urban areas. The majority of them (90%) were Hindus, 2 (4%) were Christians and 3 (6%) were Muslim. With regard to the educational status of the patients, 15 (30%) had an educational background till the middle school education, 10 (20%) subjects had no formal education. Nine subjects (18%) had primary school education, 7 (14%) had high school and higher secondary school education. The educational status of the patients with hypertension was shown in diagrammatic representation in figure 3. Twenty one patients (42%) were farmers and coolies and about 40% were housewives. Twenty four (48%) had monthly income less than Rs. 5000 and 6 (12%) had above Rs.15000 per month. The majority of them (86%) were married. Thirty five (70%) had no family history of hypertension and 15 (30%) had a family history of hypertension. Twenty four (48%) of the patients had information from the health care members and 11 (22%) from mass media. The majority of them (80%) had hypertension for 1-5 years and 20% of them had hypertension for more than 5 years.

Table 10.2: Distribution of Level of Knowledge about Management of Hypertension among Patients with Hypertension in the Pretest and Posttest

Level of knowledge	Pretest		Posttest		N=50
	Number	Percentage	Number	Percentage	
Inadequate knowledge (<50%)	32	64	-	-	
Moderately adequate knowledge (50%-75%)	13	26	19	38	
Adequate knowledge (> 75%)	5	10	31	62	

Table 10.2 shows the knowledge about management of hypertension in the pretest and posttest. The majority of hypertensive subjects (64%) had inadequate knowledge, 13 (26%) of them had moderately adequate knowledge and only 5 (10%) had adequate knowledge in the pretest whereas in the posttest, the majority of them 31 (62%) had adequate knowledge and 38% of them had moderately adequate knowledge.

Table 10.3: Comparison of Mean Knowledge Score Between Pretest and Posttest about Management of Hypertension among Patients with Hypertension

N=50				
Knowledge	Mean	Standard Deviation	Paired 't' test	'P' value
Pretest	14.16	5.45	24.09	P<0.001
Post test	24.0	3.53		

Table 10.3 shows the mean knowledge score about management of hypertension at pretest, it was 14.16 which increased to 24.0 in the posttest. The result shows that health literacy was highly effective ($P<0.001$).

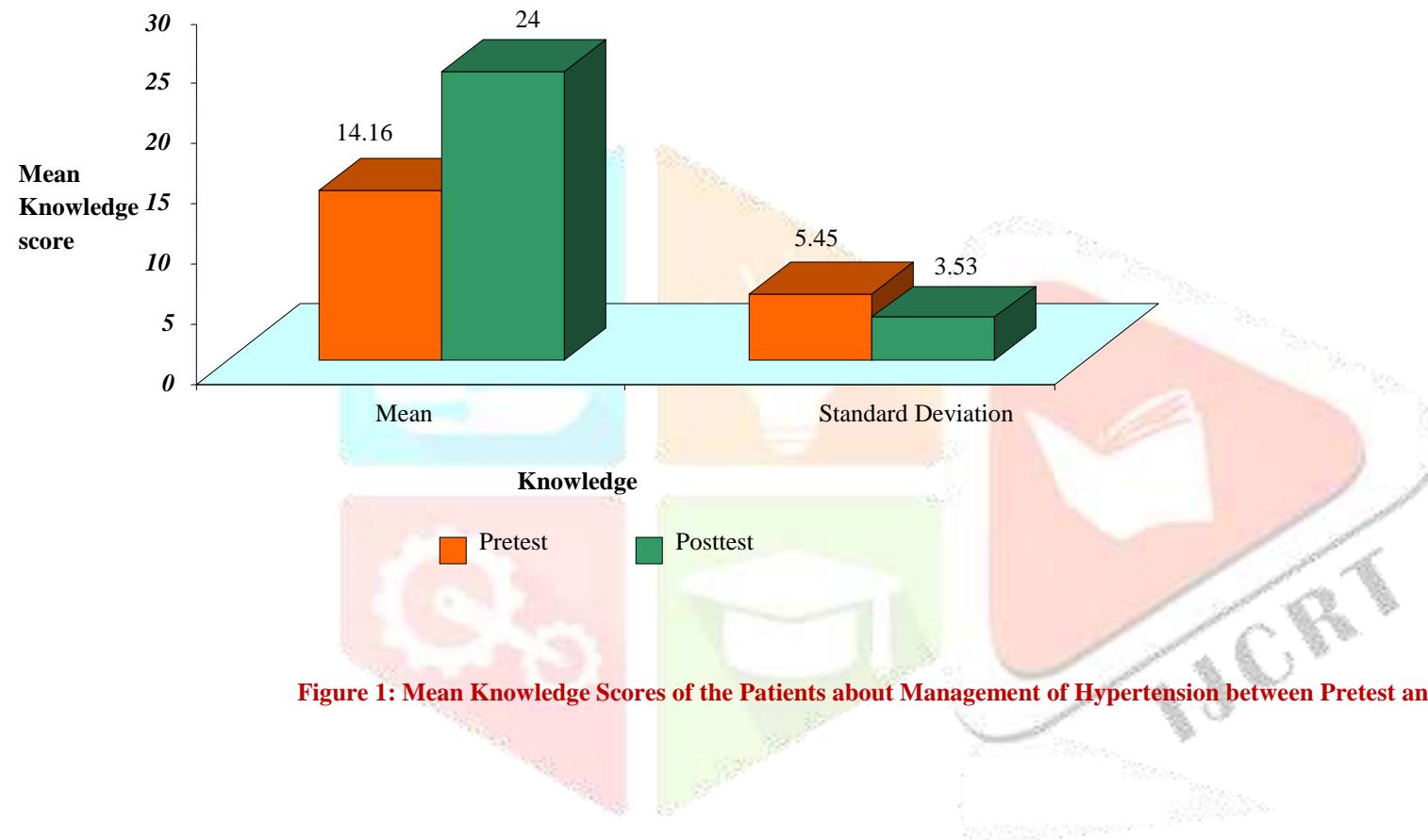


Figure 1: Mean Knowledge Scores of the Patients about Management of Hypertension between Pretest and Posttest

DISTRIBUTION OF PRETEST LEVEL OF KNOWLEDGE SCORE IN RELATION TO SELECTED DEMOGRAPHIC VARIABLES

Table 10.4: Distribution of Levels of Knowledge of Patients with Hypertension by Age

Age groups	Number	Mean	Standard Deviation	ANOVA	'P'Value N=50
20 – 30 years	-	-	-	2.039	0.122 (NS)
31 – 40 years	6	17.67	7.63		
41 – 50 years	11	16.09	4.57		
51 – 60 years	15	13.13	4.91		
61 – 70 years	18	14.67	5.12		

NS – Non significant

Table 10.4 displayed one way ANOVA test to compare the mean knowledge score between the specific age groups. The result inferred non significant association between different age groups.

Table 10.5: Distribution of Level of Knowledge of Patients with Hypertension by Gender

N=50

Gender	Number	Mean	Standard Deviation	ANOVA	'P' Value
Male	28	13.07	4.51	2.624	0.122 (NS)
Female	22	15.54	6.28		

NS – Non significant

Table 10.5 shows one way ANOVA test results as similar to both male and female.

Table 10.6: Distribution of Level of Knowledge of Patients with Hypertension by Residence

N=50

Residence	Number	Mean	Standard Deviation	ANOVA	'P'Value
Rural	31	12.83	4.29	5.209	0.027*
Urban	19	16.31	6.48		

* Statistically significant at 0.027 level

Table 10.6 shows One way ANOVA test results indicated that the urban population had a high mean knowledge score.

Table 10.7: Distribution of Level of Knowledge of Patients with Hypertension by Education

N=50

Level of Education	Number	Mean	Standard Deviation	ANOVA	P-Value
No formal education	10	10.80	2.20	9.912	0.001*
Primary school education	9	11.00	2.73		
Middle school education	15	13.00	4.23		
High school education	7	16.89	5.93		
HSSC and Graduate education	9	20.89	5.06		

* Statistically significant at 0.001 level

Table 10.7 shows One way ANOVA test was applied to compare the mean knowledge score between the specific educational levels of hypertensive subjects. The result indicated that knowledge score also increased when levels of education increases.

Table 10.8: Distribution of Level of Knowledge of Patients with Hypertension by Family History of Hypertension

N=50

Family history of hypertension	Number	Mean	Standard Deviation	ANOVA	'P'Value
Present	15	13.89	6.13	0.61	0.806 (NS)
Absent	35	14.29	5.22		

NS – Non significant

Table 10.8 shows One way ANOVA test result inferred that there was no significant difference between family history of hypertension and their knowledge level.

Table 10.9: Distribution of Level of Knowledge of Patients with Hypertension by Duration of Illness

N=50

Duration of illness	Number	Mean	Standard Deviation	ANOVA	'P'Value
1 year – 5 years	40	14.05	5.38	0.80	0.779 (NS)
6 – 10 years	10	14.60	5.98		

NS – Non significant

The result indicated that knowledge score was similar when compared to subjects with different duration of hypertension.

Table 10.10: ANCOVA Posttest Score on Knowledge about Prevention of Complications after Adjusting the Demographic Factors and the Pretest Score

Source	Type III sum of squares	Df	Mean score	F	Sig
Corrected model	482.940	3	160.980	57.377	0.000
Intercept	1074.382	1	1074.382	382.936	0.000
Pretest score	237.135	1	237.135	84.521	0.000
Education	5.447	1	5.447	1.941	0.170
Residence	5.903	1	5.903	2.104	0.154
Error	129.060	46	2.806		
Total	29412.000	50			
Corrected total	612.000	49			

Table 10.10 infers that residence and education had no influence on posttest knowledge. It infers that health literacy mainly influenced the posttest knowledge.

XI. DISCUSSION

A quasi experimental study was conducted to assess the effect of the health literacy on knowledge about management of hypertension among patients with hypertension in a selected hospital of Tamilnadu. Data collected were analyzed by using descriptive and inferential statistics and presented in the form of tables and diagrams.

The result showed that in the pretest, 32 (64%) had inadequate knowledge and 13 (26%) of them had moderately adequate knowledge and only 10% had adequate knowledge. After health literacy, in the posttest, the majority of the hypertensive subjects had (62%) adequate knowledge and 19 (38%) had moderately adequate knowledge. Paired “t” test was applied to compare pre and posttest means knowledge score. The paired “t” test value of over all score was highly significant at $P<0.01$ level. There was no significant association between knowledge about management of hypertension with regard to demographic characteristics except residence and education in the pretest. After adjusting demographic characteristics and pretest score the ANCOVA test result showed no significant influence of demographic characteristics on posttest score. This findings were similar to the results of following studies:

Bilal et.al (2016) study results revealed that the awareness level of cardiac hypertensive patients in general was inadequate in Karachi, Pakistan. **Ahmad and Ahmad (2015)** found that the 82.8% of the hypertensive patients had poor score on knowledge about management of hypertension in Moradabad, India¹. **Kumar, Singh and Asem (2015)** found that 17% of the respondents had never heard of BP and about 42.5% of the hypertensives were aware of their hypertensive status in Manipur, Northeast India⁴. **Shankar, Kumar, Kini and Kumar (2014)** found a significant proportion of hypertensive patient's had insufficient knowledge about hypertension in Coastal Karnataka, India⁹. **Mahajan, Kazi, Sharma and Velhal (2012)** found that 83.42% of hypertensive patients had poor knowledge about management of hypertension at Shivaji Nagar urban slum, Mumbai⁵. **Shayesteh, Mirzaei, Sayehmiri, Qorbani and Mansourian (2016)** revealed the average scores for the three dimensions of physical activity, nutrition, and stress management after educational intervention in the case group compared to the control group hypertensives showed a significant increase ($p < 0.05$) in Iran¹⁰. **Roopa and Devi (2014)** study results revealed that the post test scores on Knowledge, Attitude and Practice were higher than the pre test scores among elderly hypertensives in Karnataka, India⁸.

The statistical value supported the research hypothesis that the posttest knowledge score will be significantly higher than the pretest knowledge score of patients with hypertension as measured by structured questionnaire.

The study findings showed that the health literacy was highly effective in improvement of knowledge of patients with hypertension about their condition. This type of health literacy training can also create opportunities for patients to better understand their conditions and the role of therapies, as well as promote awareness about disease progression and complications. Through this education, misconceptions that patients have about their therapy can be clarified. This also can influence adherence to therapy, and may therefore potentially lead to improved blood pressure control. The findings imply the importance of education programme for patients with hypertension to prevent complications related to hypertension.

XII. RECOMMENDATIONS

1. Education about hypertensive should be given periodically and a diary can be maintained for ensuring patient participations in health education programme related to hypertension.
2. Hypertensive self-management education material tailored to the educational level of patients should be available at the clinics.
3. Education regarding self-management of hypertensive should be made mandatory in hospitals.

XIII. CONCLUSION

Knowledge about management of hypertension had increased after health literacy among patients with hypertension. The health literacy was found to be effective in improving the knowledge about management of hypertension. The study showed that the demographic variables expect education and residence had no influence on knowledge scores of hypertensive patients regarding management of hypertension in the pretest. After adjusting demographic characteristics and pretest score, the ANCOVA test result showed no significant influence of demographic characteristics on posttest score.

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