Original Article

Self-Care Practices and Role of Family Support in Control of Blood Pressure Among Hypertensive Patients Visiting a Tertiary Care Centre

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Abstract

Background: Blood pressure (BP) control depends on adherence to self-care practices and family support is important to achieve this self-care. But the research in this area are limited.

Aims: To study self-care practices and role of family support in control of blood pressure among hypertensive patients and to study factors associated with control of blood pressure.

Methods and Material: A cross-sectional study was conducted among 300 hypertensive patients selected by systematic random sampling method who attended the outpatient department by structured questionnaire using an adapted Hypertension Self-Care Activity Level Effect(H-SCALE) scale. Chi-square test, Logistic regression test was used.

Results: Mean age of study participants was 58.6±11.1years. Medication adherence, DASH diet adherence and adherence to physical activity was among 71.7%, 6.3%and 48.7% respectively. 16.3%, 90.7%and 85.7% were adherent to weight management practices, adherent to nonsmoking and alcohol abstinent, BP control was among61.7% and strong family support was among7.9%. Adherence to weight management practices and not living alone were associated with BP control, which was found statistically significant using multivariate logistic regression.

Conclusions: Weight management practices and DASH diet adherence were poor.

Keywords: blood pressure control, self-care practices, family support, India.

Introduction

Today we live in a rapidly changing environment-demographic aging, rapid urbanization and globalization of unhealthy lifestyles. Due to this non-communicable diseases such as cardiovascular diseases, cancer and chronic lung disease have

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overtaken infectious diseases as the world's leading cause of mortality.

Worldwide estimated 1.28 billion adults living in low and middle-income countries aged 30-79 years have hypertension. About 46% of adults with hypertension are unaware about this and 42% of adults are diagnosed and treated. Approximately 1in 5 adults (21%) with hypertension is under control.[1]. An estimated 17.9 million (32% of all global deaths) people died from CVDs (2019). Among them 85% deaths were due to heart attack and stroke. Among 17 million premature deaths (<70 years) due to NCDs 38% were caused by CVDs (2019).[2] NCD burden Reduction is crucial for global development. Target 3 ·4 in SDG3 includes reduction of premature NCD mortality by third by 2030.[3] It is estimated that 1in4 adults in India has hypertension and set a target of 25% relative reduction in the prevalence of hypertension by 2025. Uncontrolled blood pressure is risk factors for CVDs. Of the estimated 220 million people in India living with hypertension, only12% have their BP under control.[4] The prevalence of hypertension in urban India will be 29-45% in men and 25-38% in women by 2025.[5]

In India, NCDs are associated with estimated to 60% deaths. To tackle this problem the govt. of India has started the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases since 2010 with aim to control the modifiable risk factor for NCDs.

Promotion of healthy lifestyle by behaviour changes, screening, early diagnosis of persons for risk factors and prompt referral for disease management. Total 1.3 crore population were screened for hypertension under NPCDCS (2019).[6] The early diagnosis by opportunistic screening at health care facility level, NCD clinics, Health and Wellness Centres and population based screening by ASHAs at community level. Follow up screening done yearly for hypertension

Comprehensive management of hypertension requires both pharmacological and lifestyle modification. According to the World Health Organization, self-care is defined as "the ability of individuals, families and communities to promote health, prevent disease, maintain health and to cope with illness and disability with or without the support of a healthcare provider".[7] According to European society of hypertension (ESH), patients with high–normal BP and low–moderate CV risk lifestyle advice offered to reduces risk of hypertension. Also advice given on self-care activities and lifestyle modification strategies to achieve optimal BP control.[8] But the research in areas of role of family support, self-care practices and BP control are limited in studies done at hospital settings. Hence we planned this study with the aim to study self-care practices and family support to achieve BP control in the hypertensive patients visiting to tertiary care centre located at Pune metropolitan city and the Knowledge, awareness level about hypertension among the patients are different. Hence the results of our study can be useful to encourage the patients and their family members to maintain blood pressure level under control state and prevention of further complications.

Aim: To study self-care practices and role of family support in control of blood pressure among hypertensive patients.

Objectives:

i. To study self-care practices in hypertensive patients for control of blood pressure level.

ii. To study the role of family support in hypertensive patients for control of blood pressure level.

iii. To study the association between self-care practices, role of family support and control of blood pressure.

Material and Methods

The Cross-sectional study was conducted at hypertension OPD of Medicine department of tertiary care centre of government medical college from `Pune. Data was collected after obtaining clearance from the institutional ethics committee.

Study population and Selection of cases: Hypertensive patients >18 years visiting to OPD were selected by systematic random sampling method. Average monthly OPD was 600. Every 5th patient coming to hypertension OPD was taken as sample between March 2023 to June 2023.

Subject Eligibility:

Inclusion Criteria:

1. Hypertensive patients>18 years and taking anti-hypertensive medication for >6months duration.
2. Those who were willing to participate in the study.

Exclusion Criteria:

1. Patients with Cognitive impairment.

Sample Size:

Sample size was calculated to be 293 using the following formula:

Estimated prevalence of medication adherence (P)[7]= 54.8%

Confidence level: 95%,

Power: 80%,

Absolute precision: 5.7%

Total sample round off to 300 was taken.

Data Collection:

Epidemiological information was taken using structured questionnaire. The patient's interviews was taken by the principal investigator of the Department of Community Medicine after taking their written informed consent.

Data collection tools:

Data was collected using a structured questionnaire using an adapted Hypertension Self-Care Activity Level Effect(H-SCALE) scale. All socio-demographic characteristics, Health-seeking behaviour, comorbidities details, family support and self-care practices, BP measurement was taken.

Operational Definitions:

Medication adherence: 3-item scale was used to measure how many days the person took the medication in a week at the recommended dosage and at the recommended time. The scores for each item were summed (range 0–21). Good adherence-score of 21.[7]

DASH diet Adherence:11-item scale used to assess the intake of healthy foods associated with the nutritional composition of the DASH diet. The sum of the scores on all items ranged from 0 to 77 and total score of DASH- Q scale was0-77. A score of ≤32-low diet quality, score between 33 to 51- medium quality, and scores of ≥52 were considered as good adherence.[7]

Physical activity engagement:2-item scale measured the number of days of physical activity of at least 30 minutes for each participant. The scores on both items were summed (range 0-14). Score of ≥8 was considered as good adherence to physical activity.[7]

Smoking: The scores of 2-item scale were summed (range 0-14). Score ≥1 were considered as non-adherent to non-smoking.[7]

Alcohol use: Individuals who did not drink alcohol at all were considered as alcohol abstinent.[7]

Weight management: 10-item scale measured weight management activities in last month. The sum of the scores on all items ranged from 10-50. Individuals who scored >40 were considered as adherent to weight management practices.[7]

Family support: 16-item scale measured the influence of family members on diet and other health behaviour. For addiction 16 item scale was used. 16 score for no support, 16-32 for mild, 33-48 for moderate, 49-64 for strong support. For those who don't have addiction 14 item scale was used. 14 score for no support, 15-28 for mild, 29-42 for moderate, 43-56 for strong support. Those have either of alcohol/ smoking addiction are scored as 15-no support, 16-30for mild, 31-45 for moderate, 46-60 for strong support.

BP control - Mean BP <140/90 mmHg in all individuals based on the average of 2 readings.[7]

BP measurement: Blood pressure was measured using mercury sphygmomanometer, first by palpatory method followed by auscultatory method. 2such readings were recorded with 5minutes interval and average value taken as Blood Pressure.[9]

Data analysis:

Data was entered into MS-Excel and analysed

by statistical package for social sciences (SPSS) Version 20. For Descriptive Statistics-frequency and percentage, continuous variables mean and standard deviation were used. Chi-square test, Univariate and multivariate logistic regression were used to find association. Statistical significance of tests was decided at p-value<0.05.

Results

Among 300 study participants, there were 154 males and 146 females, 226 were having orange ration card, only 44 were below poverty line and 30 study participants were living alone. Mean age of study participants was 58.6±11.1 years.

Table 1: Gender wise distribution of Sociodemographic factors among study participants

Characteristics	Male (n=154)	Female (n=146)	Total (n=300)
Age group			
<40 years	7(4.54)	9(6.16)	16(5.33)
40-59 years	52(33.77)	68(46.58)	120(40)
≥ 60 years	95(61.69)	69(47.26)	164(54.67)
Marital status			
Married	142(96)	132(90.41)	274(91.33)
Unmarried	6(3.89)	3(2.05)	9(3)
Divorcee	2(1.29)	0(0)	2(0.67)
Widow/er	4(2.59)	11(7.53)	15(5)
Education			
Illiterate	13(8.44)	40(27.39)	53(17.67)
Primary	45(29.22)	63(43.15)	108(36)
Secondary	55(35.71)	23(15.75)	78(26)
Higher-secondary	21(13.67)	13(8.9)	34(11.33)
Graduated	14(9.09)	6(4.1)	20(6.67)
Post-graduated	6(3.89)	1(0.68)	7(2.33)
Religion			
Hindu	134(87.01)	119(81.50)	253(84.33)
Muslim	16(10.39)	27(18.49)	43(14.33)
Buddhism	1(0.64)	0(0)	1(0.33)
Christian	2(1.29)	0(0)	2(0.66)
Jain	1(0.64)	0(0)	1(0.33)
Occupation			
Retired, unemployed	50(32.5)	5(3.4)	55(18.3)
Homemaker	0(0)	113(77.4)	113(37.7)
Elementary occupation	48(31.7)	18(12.3)	66(22)
Plant, machine operators and assembles	1(0.6)	0(0)	1(0.3)
Craft related trade workers	12(7.8)	2(1.4)	14(4.7)
Skilled, agricultural and fishery workers	30(19.5)	5(3.4)	35(11.7)
Skilled worker, shop, market sales workers	5(3.2)	3(2.1)	8(2.7)
Technicians/associate professionals	4(2.6)	0(0)	4(1.3)
Professionals	4(2.6)	0(0)	4(1.3)

No significant association was found between socio-demographic factors and blood pressure control.

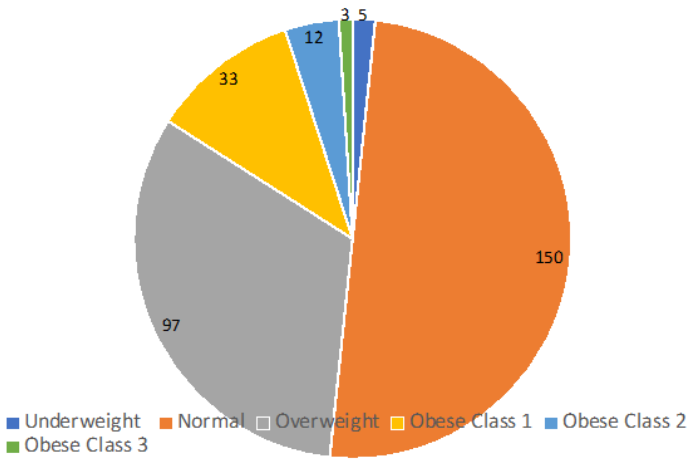

Fig 1: Distribution of study participants according to BMI

Half of study participants were having normal BMI, while 1/3rd were overweight.(fig. 1)

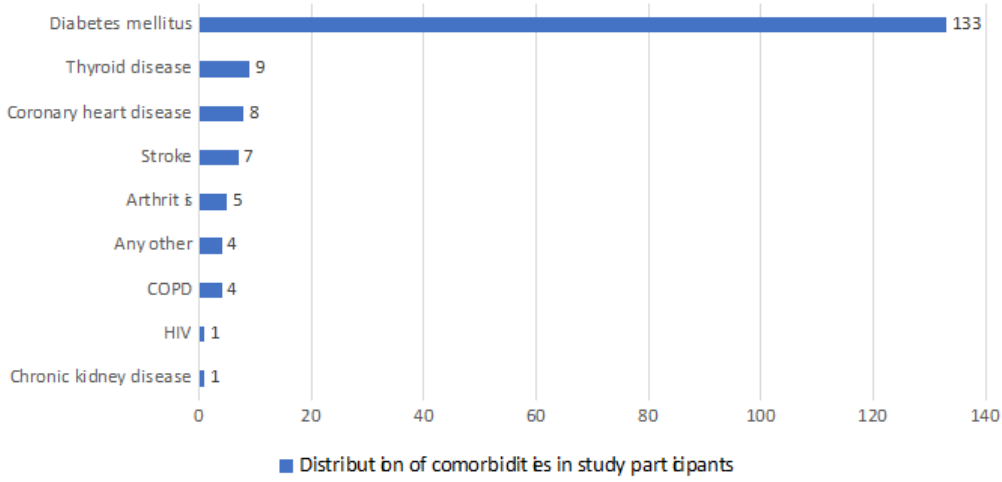

Fig 2: Comorbidities among study participants

Diabetes is most common comorbidity found in study participants followed by thyroid disease and coronary heart disease. (fig. 2)

Table 2: Distribution of self-care practices and family support among study participants

	Frequency, n=300	Percentage (%)
Self-care practices		
Medication adherence		
Adherent	215	71.7
Non-adherent	85	28.3
DASH diet adherence		
Adherent	19	6.3
Medium quality diet	151	50.3
Low quality diet	130	43.3

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Physical activity adherence		
Adherent	146	48.7
Non-adherent	154	51.3
Non smoking		
Adherent	272	90.7
Non-adherent	28	9.3
Alcohol abstinence		
Adherent	257	85.7
Non-adherent	43	14.3
Weight management adherence		
Adherent	49	16.3
Non-adherent	251	83.7
Family support in self-care*		
No support	07	2.3
Mild	66	22
Moderate	204	68
Strong	23	7.7

*There are 7out of 300 participants who don't have family hence categorized as having no family support. Among remaining 293 participants, there was no study participant with no family support in self-care practices.

Among 300 study participants, 185 were having blood pressure under control.

Table 3: Association of self-care practices and blood pressure control.

Variable	Unadjusted OR(95% CI)	P-value	Adjusted OR (95% CI)	P-value
Medication adherence				
Non-adherence	2.18(1.31-3.63)	0.003	1.58(0.91-2.75)	0.10
Adherence	Reference		Reference	
DASH diet adherence				
Non-adherence	1119155169(0.000- 0.0)	0.99	3631707(0.000-0.0)	0.99
Adherence	Reference		Reference	
Physical activity adherence				
Non-adherence	1.4(0.88-2.24)	0.16	0.72(0.42-1.42)	0.22
Adherence	Reference		Reference	
Non Smoking				
Non-adherence	1.69(0.78-3.69)	0.19	1.11(0.47-2.67)	0.81
Adherence	Reference		Reference	
Alcohol abstinence				
Non-adherence	1.85(0.97-3.54)	0.06	1.39(0.67-2.87)	0.37
Adherence	Reference		Reference	
Weight management adherence				
Non-adherence	12.36(3.74-40.78)	0.000	9.13(2.49-33.38)	0.001
Adherence	Reference		Reference	
Living alone				
Yes	1.97 (0.92-4.22)	0.08	4.2 (1.29-12.63)	0.01
No	Reference		Reference	

Table 4: Association of family support and blood pressure control

Variable	Unadjusted OR(95% CI)	P-value	Adjusted OR(95% CI)	P-value
No support	1.9(0.27-13.52)	0.52	0.19(0.02-2.13)	0.18
Mild	5.36(1.65-17.48)	0.005	2.1(0.58-7.66)	0.26
Moderate	2.7(0.89-8.25)	0.08	1.55(0.46-5.22)	0.48
Strong	Reference		Reference	

Binary logistic regression enter model was used which is model fit. (61.7 to 66% improvement). Hosmer and Lemes how test was non-significant and omnibus test was significant with value as 0.000. Independent variables taken were family support, medication adherence, DASH diet adherence, weight management adherence, physical activity adherence, alcohol abstinence, non-smoking and living alone. Dependent variable was Blood pressure (BP) control.

In univariate analysis, unadjusted odds of having uncontrolled BP is 5.36 times (CI 1.65-17.48) (*P* 0.005) in mild family support than having strong family support. Similarly, unadjusted odds of having uncontrolled BP is 2.18 times (CI 1.31-3.63)(*P* 0.003) in those who are not adherent to medication. Unadjusted Odds of having uncontrolled BP is 12.36 times (CI 3.74-40.78)(*P* 0.000) in those who are non-adherent to weight management practices (Table 3).

The odds of having uncontrolled BP is 9.13 times (CI 2.49-33.38) (*P* 0.001) in study participants with non-adherence to weight management than those adherent to weight management as reference group. Similarly, odds of having uncontrolled BP is 4.2 times (CI 1.29-12.63)(*P* 0.01) in study participants living alone than those not living alone. (Table3)

Discussion:

Today's world experiencing change in a disease pattern from acute to chronic diseases and this makes self-care as an appropriate strategy for promotion, prevention, maintenance of health of individuals. Health in one hand highly personal responsibility and other hand a major public concern. BP control is an important treatment goal for prevention of CVDs and related complications.[7] Self-care practices like behaviour relating to diet, sleep, exercise, weight, alcohol, smoking, drugs and cultivation of healthful habits is important strategy to improve long-term adherence of recommended lifestyle changes.[10]

The study shows medication adherence in 71.7%, Adherence to DASH diet was very poor6.3%, Physical activity adherence was48.7%, 9.3% subjects were smoker, Alcohol abstinence was 85.7%, Adherence to weight management practices was seen among 16.3%. Similar findings about medication adherence was noted in study by Khairulnissa Ajani et al, (2021) which was 72%,[11] and study done by Sivakumar, Krithiga et al, (2023) which was 79.2%.[12] which is low comparable to study done by Khairulnissa Ajani et al,(2021) which was 27.11%.[11] It might be due to unhealthy dietary practices like eating more salty and fast food containing white floor, preservatives, saturated fat and less amount of fibres. PREMIER trial showed DASH diet and other lifestyle practices together reduced BP and cardiovascular events.[13], the result is almost similar to various studies.[12,14,15]

In present study 9.3% subjects were smoking, the results are higher than study conducted by Sivakumar, Krithiga et al, (2023)[12] and Gelaw.S et al(2020)[14] this may be due to difference in socio-demographic profile and awareness about the disease among participant. Alcohol abstinence was 85.7% which is lower than study by Sivakumar, Krithiga et al, (2023) which was 94.1%,[12] and higher than study by Gelaw S et al,(2020) which was 65.6%,[14]

As Obesity is risk factor of hypertension and maintenance of healthy weight is crucial. Study revealed Adherence to weight management practices was 16.3% which is poor comparable to study done by Gelaw. S et al,(2020) which was 55.1%.[14] this shows the need of strengthening of yoga and physical activity related component of NP-NCD program.

The study shows significant association between family support and BP control. As family support increases from mild to strong, BP control also increases, these finding was similar to study done by Chacko S et al (2020).[7] So, the involvement of family members to achieve the BP control is crucial because

they can help hypertensive patient to change their behaviour, promotion and maintenance of healthy lifestyle. They can encourage them for going regular follow-ups and monitoring of BP levels regularly.

Study revealed 71.3% study participants monitor BP once/month, which is lesser than study conducted by Sivakumar, Krithiga et al, (2023)[12] might be due to less awareness regarding self-care. Health workers at hospital and community health worker can encourage and do counselling for regular BP checks and its importance.

Study shows, 61.7% achieved BP control which is less than study done by Joseph N et al, (2016) which was72.4%.[15] Study found no significant association between BP control and socio-demographic factors, similar results found in study by Sivakumar Krithiga et al, (2023)[12] however study by Joseph N et al(2016) had found significant association between adherence to self-care practices and socio-demographic factors-age, sex, education and occupation.[15] This may be due to difference in study population and study setting between these studies.

This study shows that those who have medication adherence achieved better BP control than non-adherent group. Similar findings was reported in other studies.[16,17,18]

Self-care practices are very important and they are strongly associated with BP Control in individuals with hypertension. Additionally, family support enhances adherence to self-care practices related to BP management.[7] BP control in individuals with hypertension often requires adherence to self-care activities beyond medications.[18]

Self-care practices among DM were assessed frequently but there was paucity of literature about self-care practices in hypertension. This study highlights importance to adherence to self-care practices in blood pressure control. Results may not be generalized to entire population as hospital based study. Data given by study participants was self-reported and no objective measurement was done.

Conclusion

Overall, BP control was achieved in 3 out of 5 study participants with diagnosed hypertension and on treatment. Adherence to self-care practices is less in present study population. Medication Adherence was almost in three-fourth study participants. DASH diet adherence and weight management adherence were poor. Almost half of study participants were adherent to physical activity. Adherence to alcohol abstinence and no smoking was followed by maximum study participants. Family support and adherence to weight management practices have positive effect on blood pressure control. Counselling by hospital staff like Drs and staff nurses regarding importance of lifestyle modification done at time of diagnosis itself and at each follow up may prove beneficial for BP control.

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Ethical Clearance: Name of the ethics committee: Institutional Ethics Committee, B.J. Govt. Medical College & Sassoon General Hospitals, Pune Dated: 29/03/2023, Number: BJGMC/IEC/Pharamac/ND-Dept. 0323061-061

Conflict of interest: Nil

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