



IMPACT OF EDUCATION ON KNOWLEDGE, ATTITUDE AND PRACTICES IN PATIENTS OF HYPERTENSION

General Medicine

Dr Chirag Sethi	Junior Resident, Department of General Medicine, Maharishi Markandeshwar Institute of Medical Sciences and Research, Ambala at Mullana
Dr Savita Kumari*	Professor, Department of General Medicine, Maharishi Markandeshwar Institute of Medical Sciences and Research, Ambala at Mullana *Corresponding Author
Dr Amay Makhija	Senior Resident, Department of General Medicine, Maharishi Markandeshwar Institute of Medical Sciences and Research, Ambala at Mullana

ABSTRACT

Introduction: Hypertension, defined as a systolic blood pressure (SBP) of 130 mmHg or higher and/or a diastolic blood pressure (DBP) of 80 mmHg or higher, is a significant global health concern, contributing to cardiovascular diseases such as stroke, heart failure, myocardial infarction, and renal failure. In India, hypertension affects 23.1% of men and 22.6% of women over 25 years of age, with a notable difference between rural (10%) and urban (25%) populations. Despite advancements in the definition and treatment of hypertension, the condition remains poorly controlled in many individuals, particularly those with treatment-resistant hypertension. Patient education plays a vital role in improving knowledge, attitude, and practice (KAP) concerning hypertension management. **Methods:** This prospective study was conducted at the MM Institute of Medical Science and Research, Ambala, to assess the KAP of hypertensive patients. 100 patients with primary hypertension participated, with an age range of 18 years and above. The patients completed a validated questionnaire that addressed demographics, knowledge about hypertension, attitudes toward management, and practices related to blood pressure control. **Results:** The study found that 68% of patients lacked basic awareness of hypertension, and 33% believed that smoking and alcohol were contributing factors to the disease. Only 32% correctly identified high blood pressure terms, and 70% understood that a normal BP reading should be 120/80 mmHg. Regarding attitudes, 43% of patients disagreed with the importance of adhering to prescribed medication, and only 12% believed lifestyle changes could help manage hypertension. Additionally, treatment adherence was low (13%), and most patients did not monitor their blood pressure regularly. **Conclusion:** The results suggest that hypertension education programs are urgently needed to improve patient knowledge, promote lifestyle changes, and enhance medication adherence. Over a six-month period, improvements in KAP were observed, with 67% of patients maintaining better blood pressure control. This study emphasizes the importance of a comprehensive approach to hypertension management, combining regular monitoring, patient education, and lifestyle interventions, to reduce the burden of hypertension and its associated complications.

KEYWORDS

Hypertension, Blood Pressure, Cardiovascular disease

INTRODUCTION

Although it is a significant risk factor for cardiovascular problems, hypertension is not a disease. It can be characterised as a state in which blood pressure is so high that reducing it has a positive therapeutic impact.¹ One billion people globally and 77.9 million American adults (1 in 3) suffer from high blood pressure. It is projected that 1.56 billion persons would have hypertension by 2025. An estimated 7.5 million deaths and 57 million disability adjusted life years (DALYs) are attributed to elevated blood pressure.² According to a 2004 survey, hypertension accounts for 42% of deaths from cardiovascular disease and 57% of all stroke deaths in India, with a prevalence of 10% in rural areas and 25% in urban areas.³

The ageing of the population, urbanisation, sedentary lifestyles, obesity, alcohol use, and chronic stress are all factors contributing to the rising incidence of hypertension. Every year, complications from hypertension cause 9.4 million deaths globally. In India, hypertension affects 23.10% of males and 22.60% of women over 25.⁴

Because it gradually and irreversibly affects organs before any diagnosable outward presentation occurs, hypertension is known as the "silent killer." Patients should so closely follow their treatment plan and be aware of the preventive approach to managing their hypertension.⁵

When hypertension awakens, it can be compared as a "sleeping snake" that bites.⁶ Since hypertension is a common disorder that can be controlled with both nonpharmacological lifestyle variables and pharmacological treatment, it presents a significant area for intervention in this setting. Lifestyle factors such as reduced alcohol consumption, decreased sodium chloride intake, improved physical activity, and weight control can lower blood pressure.⁷

Given its prevalence and ability to be managed with both nonpharmacological lifestyle changes and pharmaceutical treatment, hypertension offers a significant area for intervention in this setting. Increased physical activity, decreased sodium chloride intake, decreased alcohol consumption, and weight control are lifestyle factors that can lower blood pressure.⁴ It is necessary to examine KAP among the general public in order to build future programs for

effective health education.⁸ Patients' attitudes and understanding affect how the disease is managed, which helps to improve blood pressure control, medication adherence, patient morbidity, and patient mortality.

The present study was aimed to evaluate the the patients Knowledge, Attitude and Practice regarding hypertension.

MATERIAL AND METHODS

The Prospective Study took place at the MM Institute of Medical Science and Research's General Medicine department in Mullana, Ambala. The Institutional Ethical Committee (IEC) gave its blessing before the study could begin. People who met the following criteria were considered for inclusion in the study: they had primary hypertension for at least six months, were at least 18 years old (male or female), and had to be willing to participate. Co-morbid conditions, such as diabetes or cardiovascular disease, were also considered. Participants were not allowed to take part in the study if they were pregnant or nursing, if they had secondary hypertension, or if they refused to participate. For this study, 100 patients were enrolled and given a validated questionnaire in a vernacular version. The questionnaire was adopted, changed, and closed-ended.^{3, 6} A total of sixteen questions made up the survey: five covering demographics, five on knowledge, five on attitude, and six on practice.

Indoor patients who are at least 18 years old are the subjects of this prospective study. The patients received normal care, including examinations, evaluations, and management. No further intrusive testing was carried out. Patients were neither put at risk or charged more as a result of this study. After patients were informed and their written agreement was obtained, they were enrolled in the study. There was zero coercion on the part of the researchers; patients were free to withdraw from the trial at any moment. The patients were fully informed about the study's purpose, methodology, and any investigation that involved them. They were also given the option to refuse at any moment, even after signing the consent form, and were not disqualified from the study if they did not want to participate. restating the topic

Statistical Analysis

The data was entered into a 2019 Microsoft Excel workbook after being captured on a proforma. The frequency and percentage of each categorical variable were used for presentation. We presented quantitative factors as mean $\pm$ SD. Using a paired t-test, we compared quantitative factors across two intervals. A statistically significant result was defined as a P value less than 0.05. With SPSS v17.0 (IBM, USA), we ran all the additional statistical tests.

RESULTS

Baseline Characteristics

The average age of the people who took part in this research was 46.92 ± 7.50 years. The age bracket of 41–50 years accounted for 45% of the total, with 31–40 years making up 21%, 51–60 years 30%, and 60 years 4%. Due to a lack of follow-up, two patients in the 18–30 age range were not included. There were more men than women (55% vs. 45%) in this study. The ratio of males to females was 1:1.22. Patients' levels of education varied in this study; 27% were illiterate, 45% were undergraduates, 18% were graduate students, and 10% were postgraduates. Among the patients surveyed, 56% were from lower-class backgrounds, 35% were from middle-class backgrounds, and 9% were from upper-class backgrounds. Nearly half of the patients used cigarettes at some point, and nearly a quarter of the patients abused alcohol. The average systolic blood pressure (SBP) of alcoholics was 169.65 ± 22.76 mmHg, and their average diastolic blood pressure (DBP) was 98.43 ± 13.87 mmHg. There is a wide range of alcohol-related substance misuse that falls under the umbrella term "alcohol abuse." This includes everything from the typical male consumption of two drinks per day to over one drink per day to extreme cases like binge drinking or alcohol use disorder. As a whole, smokers' systolic blood pressure was 172.54 ± 27.67 mmHg, and their diastolic blood pressure was 100.65 ± 10.76 mmHg.

Personal History

Blood pressure (SBP) was found to be substantially greater in smoker patients (172.54 ± 27.67 mmHg vs 161.65 ± 23.45 mmHg; $P=0.035$) in comparison to nonsmoker individuals in this study. Patients who smoked had substantially higher diastolic blood pressure (100.65 ± 10.76 mmHg vs 95.55 ± 9.32 mmHg; $P=0.012$) as compared to nonsmokers. The subjects who abused alcohol had substantially higher systolic blood pressure (169.65 ± 22.76 mmHg vs 158.65 ± 21.28 mmHg; $P=0.040$) than those who did not. 98.43 ± 13.87 mmHg versus 91.76 ± 10.35 mmHg; $P=0.016$) was the considerably higher diastolic blood pressure (DBP) in alcohol abusers compared to nonalcoholics.

Knowledge of Hypertension Patients

32% of the patients were aware of high blood pressure terms, while 68% were unaware. 70% of the patients reported normal BP as 120/80 mmHg, 11% reported normal BP below 120/80 mmHg, and the remaining 19% reported normal BP as more than 120/80 mmHg. 33% of the patients in this study believed that smoking and alcohol are the contributing factors to hypertension. In comparison, 67% of the patients did not believe that smoking and alcohol are the contributing factors of hypertension. In this study, stroke was the most common complication of hypertension (70%) as told by the patients, followed by heart attack/heart failure/CAD (51%), visual impairment (55%), and renal failure (3%).

Attitude of Hypertension Patients

Among the patients surveyed, 33% were in agreement that taking their medication as prescribed would help manage their hypertension and symptoms, 24% were unsure, and 43% strongly disagreed. Among the patients surveyed, just 12% thought that making changes to their daily routines helped get their blood pressure under control; 39% thought that medication alone might do the trick; and 49% were still unsure. Among the patients surveyed, 67% were in disagreement, 21% were unsure, and 12% were in agreement that limiting salt intake aids in hypertension treatment. A healthy diet, which includes weight loss, plays a role in treating hypertension, according to 63% of patients in this study; 25% were undecided, and 12% agreed. While 22% of patients disagreed, 12% agreed that exercise can manage hypertension.

Practice of Hypertension Patients

Less than half of patients have their blood pressure checked every 30 days, and even fewer do it every week (14%). Nevertheless, treatment adherence was low, at 13%. Nobody checked their blood pressure every day. A quarter of patients go for follow-ups every seven days, a third go every fifteen days, and nearly half go every month. Twelve percent of patients abstain from eating salt. About a quarter of the

patients exercised for 30 minutes, five days a week. Typical housekeeping tasks, cycling, yoga, etc., are all part of the exercise program.

Blood Pressure on Follow-up

In our study, blood pressure at 6 months was significantly improved compared with baseline ($P<0.0001$).

DISCUSSION

Hypertension, or excessive blood pressure, is the main risk factor for cardiovascular disease and stroke.⁹ Careful care of hypertension is necessary to keep the disease under control and to avoid its consequences. More education about hypertension increases the likelihood that patients will take their medicine as directed and keep their BP in a healthy range.^{10,11} Hypertension patient education is an exciting area to explore because of how important it is to the treatment of the disease. With increased knowledge about hypertension, patients may be better able to take charge of their health and make informed decisions about their lifestyle. In order to achieve this goal, it is necessary to have a deeper comprehension of the disease's features, enhance behavioural discipline, achieve better clinical outcomes, and control blood pressure and drug compliance more efficiently.^{12,13} The importance of patient education has been varied throughout countries' official guidelines for hypertension therapy.^{14,15}

Greater than in rural areas, the prevalence of hypertension was 28.1% in India's metropolitan areas.¹⁶ Compared to their contemporaries, this was more common among women, those over the age of 65, and those with higher household incomes.¹⁶

Our findings show that the average age of the participants was 46.92 ± 7.50 years. Ages 41–50 made up 45% of the total, with those 31–40 making up 21%, those 51–60 making up 30%, and those 60 and beyond making up 4%. There were two patients in the 18–30 age group who were never contacted again. Machaalani et al. studied the ketone acid profile (KAP) of hypertension (HTN) at baseline in patients from Lebanon, and identified the factors that affect HTN KAP scores and those that predict hypertension KAP parameters. The average age of the hypertensive patients was 59.15 ± 13.55 years, with ages varying from 18 to 91 years.¹⁷ Bollampally et al. recorded the patient's level of understanding, perspective, and behaviour concerning hypertension in India. Respondents' ages ranged from under sixty to under eighty-one percent.¹⁸

Our study included more males than females (55% vs. 45%). One female was accompanied by 1.22 males. On a similar note, in an Indian study, Bollampally et al. There were more men than women among the patients (52.5 percent vs. 47.5 percent).¹⁸ Alhowaymel et al. examined the hypertensive population in rural Saudi Arabia and found that, in relation to KAP for stroke prevention, 88.8% were male and 11.2% were female.¹⁹ A study by Rai et al. identified hypertension as being prevalent among current cigarette smokers at a tertiary care facility's outpatient department (54.28%). There were 156 males (75.64%) and 53 females (24.36%) with hypertension.²⁰ In a study by Gupta et al., The patient population was predominately male (60.66% vs. 39.34%).²¹

Of the patients enrolled in our study, 56% were from lower-class backgrounds, 35% were from middle-class backgrounds, and 9% were from upper-class backgrounds. As part of a study by Luo et al. examined the correlation between socioeconomic status (SES) and the incidence of hypertension in southwest China and discovered that the condition was much more common among individuals with lower incomes compared to those with higher incomes.²²

This study has shown SBP was significantly higher in smokers than nonsmokers (172.54 ± 27.67 mmHg vs 161.65 ± 23.45 mmHg; $P=0.035$). DBP was also considerably higher in smoker patients compared with nonsmoker patients (100.65 ± 10.76 mmHg vs 95.55 ± 9.32 mmHg; $P=0.012$). A study by Fogari et al. compared the blood pressure readings of a group of workers to see whether there were any discernible differences in the prevalence of hypertension between the smoking and non-smoking groups. Smokers' diastolic blood pressure was significantly lower (83.6 compared 84.04 mmHg, $P < 0.001$) while their systolic blood pressure was significantly higher (128.05 against 126.72 mmHg, $P < 0.005$).²³ Bowman et al. found that whereas 13% of patients smoked regularly, 36% were former smokers. At baseline, smokers had somewhat higher systolic blood pressure ($P<0.0001$).²⁴ However, there are a number of ways in which blood pressure is lower in smokers compared to non-smokers.²⁵⁻²⁷

At the time of inclusion to the present study only 32% of the patients were aware of high blood pressure terms, while 68% were unaware. In a survey by Judeh et al, the hypertension diagnosis and management expertise, outlook, approach, focus, and trust of primary care physicians in Qatar who are also patients, and to determine what elements lead to outstanding understanding, optimistic outlook, and intended actions. When questioned about their knowledge of hypertension, 51.8% correctly identified a systolic blood pressure of 140 mm Hg as hypertensive and 62.4% correctly identified a diastolic blood pressure of 90 mm Hg as hypertensive. To manage their blood pressure, most hypertension patients require a combination of two or more antihypertensive drugs. Of those who took the survey, 67% correctly identified this fact.²⁸

Our data shows that 50% or more of patients get their blood pressure taken monthly or more frequently. Only thirteen percent of patients really finished treatment after it began. In the course of researching Rashidi et al, Thirteen percent took their blood pressure readings daily, while eleven percent took their readings every two weeks.²⁹ In a study by Buang et al, Fifty-five percent of respondents (83 people) would keep an eye on their blood pressure readings regardless of whether they were feeling sick, and seventy-nine percent (78 people) would never skip a routine examination to discuss their readings with their doctor. A whopping 95.5% of survey takers (105 people) agreed that regular blood pressure checks are important for general health and hypertension prevention. In addition, 87.3% (96) said that persons experiencing chronic stress should closely monitor their blood pressure measurements, whereas only 63.6% (70) held this view for smokers. An overwhelming majority of respondents (94.5%, n=104) believed that reducing their risk of having hypertension might be achieved with the following lifestyle changes: eating a healthy, well-balanced diet and obtaining enough sleep.³⁰

Compared to the start of the trial, the blood pressure was significantly lower after 6 months ($P<0.0001$). On the other hand, 81% of patients were categorised as having uncontrolled blood pressure at baseline, whereas only 19% had it under control. While 46% of individuals were able to control their blood pressure by the end of the third month. The majority of trial participants (67% at the 6-month mark) were able to keep their blood pressure under control. Sun et al. examined the relationship between patients' level of education, the prevalence of hypertension, and their ability to control their blood pressure in those who had previously been diagnosed with hypertension. Maintaining a healthy blood pressure level was only achieved by 40.6% of individuals with hypertension.³¹

Individuals' perceptions of hypertension differed, as shown in this study. A only 32% knew what hypertension was, and an even smaller percentage (70%) knew that a typical reading was 120/80 mmHg. Headaches (66% of instances) and palpitations (62% of cases) were among the symptoms mentioned. As expected, only 33% of respondents thought that alcohol and cigarettes were the main causes of hypertension, and an even smaller percentage (12%) thought that changing one's habits was essential to controlling the illness. Also, about the efficacy of medication in controlling hypertension, more than 50% of poll takers were sceptical. Sabouhi et al. noticeably correlated self-awareness with understanding, demeanour, and behaviour. The gap between theoretical understanding and practical application is rather wide. In addition, patients' attitudes and actions are highly correlated.³² Wolde et al. As a whole, the results demonstrated that 26.8% of patients had a thorough understanding of hypertension, 17.9% had a moderate understanding, and 55.3% had a basic comprehension.³³

CONCLUSION

Hypertension patient education programs that emphasise the need of following prescribed medication regimens and making other lifestyle modifications are urgently needed, according to this study's findings. In the research, patients were able to better manage their hypertension as a result of their improved knowledge, attitude, and practice. Knowledge, attitude, and practice all improved over the course of three months compared to baseline, and at six months, they continued to show improvement. Potentially fewer consequences connected to hypertension might result from this. Patients are more likely to comply with treatment plans and have better outcomes when they receive regular monitoring and subsequent therapy. Considering all of the results, it is clear that the study group's hypertension needs a comprehensive approach to treatment.

Table 1: Baseline Characteristics

Baseline Characteristics	Frequency (n=100)	Percentage (%)
Age group		
18-30 years	0	-
31-40 years	21	21%
41-50 years	45	45%
51-60 years	30	30%
>60 years	4	4%
Gender		
Male	55	55%
Female	45	45%
Education		
Illiterate	27	27%
Undergraduate	45	45%
Graduate	18	18%
Postgraduate	10	10%
Socioeconomic status		
Lower class	56	56%
Middle class	35	35%
Upper class	9	9%
Personal History		
Smoking	43	43%
Alcohol	21	21%

Table 2: Personal History

Personal History	Smoker	Non-smoker	P value
Blood pressure			
SBP	172.54±27.67	161.65±23.45	0.035
DBP	100.65±10.76	95.55±9.32	0.012
Blood pressure	Alcohol	Non-alcohol	P value
SBP	169.65±22.76	158.65±21.28	0.040
DBP	98.43±13.87	91.76±10.35	0.016

Table 3: Knowledge of Hypertension Patients

Knowledge of hypertension patients	Frequency (n=100)	Percentage (%)
High blood pressure awareness		
Yes	32	32%
No	68	68%
Do you know what the normal BP level is?		
<120/80 mmHg	11	11%
120/80 mmHg	70	70%
>120/80 to ≤140/90 mmHg	19	19%
Smoking and alcohol cause hypertension		
Yes	33	33%
No	67	67%
Complication of hypertension		
Heart attack (CAD)	51	51%
Visual impairment	55	55%
Stroke	70	70%
Renal failure	3	3%

Table 4: Attitude of Hypertension Patients

Attitude of hypertension patients	Frequency (n=100)	Percentage (%)
Regular medication will control hypertension and presenting complaints	33	33%
Drug alone can control hypertension	12	12%
Salt restriction can control hypertension	12	12%
Role of Diet in the Control of Hypertension	12	12%
Physical activity and control of hypertension	12	12%

Table 5: Practice of Hypertension Patients

Practice of hypertension patients	Frequency (n=100)	Percentage (%)
Do you measure BP regularly		
Daily	0	-
Once in a week	14	14%
Once in 15 days	38	38%
Monthly once	48	48%
Do you go for regular follow-up		
Once in a week	14	14%

Once in 15 days	38	38%
Monthly once	48	48%
Do you avoid extra salt in your diet		
Yes	12	12%
No	88	88%
Do you exercise for 30 min		
Yes	27	27%
No	73	73%

Table 6: Blood Pressure on Follow-up

Blood pressure	Baseline	At 3 months	At 6 months	P value
Controlled	19 (19%)	45 (45%)	67 (67%)	<0.0001
Uncontrolled	81 (82%)	55 (55%)	33 (33%)	

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