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PATIENT TREATMENT SATISFACTION AND MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS VISITING A TERTIARY CARE HOSPITAL IN INDIA: A CROSS SECTIONAL STUDY

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ABSTRACT: Objectives: This observational cross-sectional study is aimed to assess the medication adherence and treatment satisfaction in hypertensive patients. This study was conducted at a public tertiary care hospital. **Methods:** Hypertensive patients of both the sex groups aged >60 years visiting outpatient department were enrolled. The Morisky Medication Adherence Scale and the Medication Interview Satisfaction Scale (MISS-21) were used to assess treatment adherence and satisfaction in the study population. The study included 153 hypertensive patients. **Key findings:** Most of the study participants had poor socioeconomic level and were in the age group of 60-65 years. The study participants reported high levels of treatment satisfaction. Patients reported good satisfaction across all four MISS domains: distress alleviation, communication comfort, compliance intent, and rapport. The frequency of nonadherence in this study was 24.2%. **Conclusion:** Despite reporting high levels of satisfaction, most patients did not adhere to their prescriptions. Aged hypertensive patients require special attention in hospitals to ensure proper treatment adherence. Patients with hypertension should be advised to take their medications for the rest of their life. Healthcare professionals have a greater responsibility when treating elderly patients with chronic conditions.

INTRODUCTION: Hypertension is defined as a persistent rise in arterial blood pressure (BP). Hypertension is a major risk factor for developing cardiovascular disease. Currently, around one-third of patients with hypertension are undiagnosed and almost half of those who are diagnosed do not take antihypertensive medication which leads to uncontrolled hypertension.

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Uncontrolled hypertension is a clinical condition in which BP is ≥ 140/90 mmHg or higher which carries a high morbidity and mortality risk including heart failure, coronary heart disease, stroke, and renal insufficiency [1-3].

High blood pressure is typically asymptomatic, especially in its early stages, earning to its description as 'silent killer' [4-6]. Routine blood pressure screening is required due to the asymptomatic nature of hypertension and the disease load [7-8]. Hypertension affects one in every three adults throughout the world. This widespread, fatal disorder causes strokes, heart attacks, heart failure, kidney damage, and a variety of other health issues.

The number of persons with hypertension (blood pressure of 140/90 mmHg or higher, or those using hypertension medication) doubled, from 650 million to 1.3 billion between 1990 and 2019. Nearly half of hypertensive patients worldwide are now ignorant of their medical conditions. More than 75% of adults with hypertension live in low- and middle-income nations [9]. Adherence to medications is associated with improved health benefits and patient outcomes.

Adherence to high blood pressure therapy is one of the important factors which determine the degree of blood pressure control in short term and morbidity/mortality associated with hypertension in long term [10-15]. The World Health Organisation (WHO) defines adherence as "the extent to which a person's medication-taking behaviour, maintaining a diet, and/or implementing lifestyle changes corresponds with agreed instructions from a health care provider" (WHO). Medication adherence ranges from 0% to 100%, with higher numbers indicating better patient adherence. Adherence to medication is influenced by a variety of factors, including low socioeconomic level (SES), drug class, number of pills per day, side effects, patient awareness of the disease, age, gender, severity of disease, and treatment importance [16]. Satisfaction is the perception of someone's experience in comparison to their expectations [17].

Patient satisfaction with physicians impacts the efficiency and utilisation of health services, and varies based on individual characteristics. Patients' perception of satisfaction is based on the gap between their expectations and the outcome of their visit to the physician [18]. Adherence to therapy, provision of ongoing care, the medical management of the illness are all directly related to satisfaction with clinician-patient interaction [19]. Previous research indicates that hypertensive patients are considered adherent when they consume at least 80% of their prescription medication [20]. Despite the availability of effective drugs maintaining high blood pressure in the ageing population remains a significant concern for clinicians [21]. Non-adherence to antihypertensive drugs is a significant risk factor for uncontrolled blood pressure, disease progression, higher medical costs, and even mortality [22-24]. Nonadherence can be caused by dexterity impairments, deteriorating cognitive ability, and poor communication between medical professionals and patients. As people age, they are more prone to medication mismanagement, adverse drug events, and adverse health outcomes. Our study evaluated medication adherence and treatment satisfaction among elderly hypertension patients at a public tertiary care hospital. Our study examined the corelation between treatment satisfaction and medication adherence in elderly hypertensive patients.

MATERIAL AND METHODS:

Study Design and Setting: Across sectional study was carried out in outpatient department of General Medicine of SGT Medical College Hospital and Research Institute, Budhera, Gurugram, Haryana. SGT hospital is a multi-speciality 720 bedded hospital, which caters to rural as well as semi-urban population. The study was undertaken after due consent was obtained from the Department of General medicine, SGT Medical College Hospital and Research Institute, Budhera, Gurugram, Haryana. A total of 153 were analysed during the study in 6 months starting from 1st January 2023 till 30th June 2023. The ethical clearance to carry out the study was obtained from the Institutional Ethics Committee (IEC), registered by CDSCO, MOHFW and DHR, ICMR according to ICMR/GCP guidelines (Approval letter; reference SGT/MC/GEN.MED. /HOD/2022/329).

Study Population: Patients with age greater than 60 years attending the general medicine outpatient department and patients of both genders at SGT Medical College Hospital and Research Institute, Budhera, Gurugram, Haryana for the first time and/or newly diagnosed patients were included. Non cooperative patients and which are not willing to participate in the study were also excluded from the study. Patient information sheet was given to them and explained the purpose and details of the study in a simple manner. Informed consent of the patients was taken before participating in the study. The patient information sheet and informed consent form were prepared in both Hindi as well as English language. Data was collected using a structured validated data collection form. Data was filled by the help of patients or caretaker into the data collection form for every patient. The information collected included demographic details of the patient, symptoms, diagnosis, and drug

treatment, advice to the patient, completeness, and legibility of prescription. The data collected from the case sheets was gathered and examined in a systematic manner. The demographic information of the study population, such as name, age, gender, height, weight, BMI, and IP number, is included in the data that was gathered. Details are also included in the case sheets. Such include past health and medication histories, length of stay, vital signs, and social history. Descriptive statistics were used to calculate frequency, averages, and percentages.

Data Collection Form: A semi structured data collection form is used which includes all the demographic details like age, gender, diet pattern.

Medication Interview Satisfaction Scale (MISS 21): Patient treatment satisfaction was evaluated with the assistance of MISS 21 tool which was originally designed by British general practice and it is used to assess patient treatment satisfaction. The scale comprises 21 questions. Patients are asked to rate their level of agreement on a 7-point Likert scale: very strongly disagree (1), strongly disagree (2), disagree (3), uncertain (4), agree (5), strongly agree (6), and very strongly agree (7).The scale has four dimensions. Namely 'Distress reliefsubscale' (6 items), 'Communication comfort subscale' (4 items), 'Rapport subscale' (8 items), and 'Compliance intent subscale' (3items). Responses to all questions are collected. Higher scores indicate higher levels of satisfaction.

Statistical Analysis: Demographic data were provided using descriptive statistics. Categorical variables have been analysed using frequencies and percentages. Statistical analyses were conducted using SPSS version 21.0 (Inc.).

RESULTS

Patient Characteristics: A total of 153 patients participated in the study as per the inclusion criteria of the study protocol. The mean age of the study participants was 50.56%. and 51% people have age more than 65 years and remaining 49.0% were in the age group of less than or equal to 65 years. Around 51% patients are male and 49% are females. Among all the hypertensive patients 76% patients had 141-180 mm hg SBP and 23% had between 120-140 mmhg and 66% people had < or equal to 90 mm hg DBP and 34% had more than 90mmhg. There are 51 people who are vegetarian and 49% are non-vegetarian **Table 1.**

TABLE 1: DISTRIBUTION OF STUDY PARTICIPANTS ACCORDING TO SOCIO-DEMOGRAPHIC VARIABLES

Age	Number	%
less than or equal to 65	75	49.02%
More than 65	78	50.98%
Gender		
Male	78	50.98%
Female	75	49.02%
Systolic Blood Pressure (SBP)		
141-180	117	76.47%
120-140	35	22.88%
≤120	1	0.65%
Diastolic Blood Pressure (DBP)		
≤90	101	66.01%
>90	52	33.99%
Diet		
Non veg	75	49.02%
Veg	78	50.98%

Correlation between Various Attributes: It has been found in our study that 76% participants did not forget to take the medicine, 51% people said they are not careless at times about taking their medicine and 53% patients confirmed that 46% sometimes forget to refill prescription medicine on time. According to satisfaction level, 54% participants said that they feel better sometimes to stop taking medicine. 52% said sometimes they feel worse, when they take medicine but they didn't stop taking it. 82% participants said that taking their medicine for a long term, they have benefits as told by doctors or a pharmacist **Table 2.**

TABLE 2: DISTRIBUTION OF PARTICIPANTS ACCORDING TO MOTIVATION AND KNOWLEDGE

Motivation	Yes	No
Q1	37(24.2%)	116(75.8%)
Q2	75(49.0%)	78(51.0%)
Q6	71(46.4%)	82(53.06%)
Satisfaction		
Q3	83(54.2%)	70(45.8%)
Q4	74(48.4%)	79(51.6%)
Q5	126(82.4%)	27(17.6%)

Approximately 52(51%) and 51(49%) male and females had high motivation respectively. While 26(52%) males and 24(48%) females had low motivation. Chi-square test was applied and the results was insignificant at 0.05 level of significance **Table 3**. It has been found that 51(50%) male and females had high knowledge.

While 27(53%) males and 24 (47%) females had low motivation. Chi-square test was applied and the results was insignificant at 0.05 level of significance **Table 4.**

TABLE 3: ASSOCIATION BETWEEN GENDER AND THE MOTIVATION OF THE PARTICIPANTS

	Motivation				Total
Gender	**Low motivation**	**High Motivation**	**Chi-square**	**p-value**	
Male	26	52	0.031	0.86^{NS}	78
Female	24	51			75
Total	50	103			153

NS= Not significant

TABLE 4: ASSOCIATION BETWEEN GENDER AND THE KNOWLEDGE OF THE PARTICIPANTS

	Knowledge				Total
Gender	Low Knowledge	High Knowledge	Chi-square	p-value	
Male	27	51	0.118	0.732 ^{NS}	78
Female	24	51			75
Total	51	102			153

NS= Not significant

Factor analysis revealed that 42(41%) people who had equal and < 65 years and 61(59%) who had more than 65 years aged high motivation. While 33(66%) fellow from equal or less than 65 years and 17 (34%) more than 65 years had low motivation. Chi-square test was applied and the results was significant at 0.05 level of significance **Table 5.**

TABLE 5: ASSOCIATION BETWEEN AGE AND THE MOTIVATION OF THE PARTICIPANTS

	Motivation				Total
Age	**low motivation**	**High Motivation**	**Chi-square**	**p-value**	
≤ 65 Years	33	42	8.57	0.003*	75
>65 Years	17	61			78
Total	50	103			153

*=Significant at 0.05 level.

The results of the analysis revealed that 55(54%) people who had equal and < 65 years and 47(46%) who had more than 65 years aged high knowledge. While 20(39%) patients from equal or less than 65 years and 31(61%) more than 65 years had low knowledge. Chi-square test was applied and the results was significant at 0.05 level of significance **Table 6.**

TABLE 6: ASSOCIATION BETWEEN AGE AND THE KNOWLEDGE OF THE PARTICIPANTS

	Knowledge				Total
Age	**Low Knowledge**	**High Knowledge**	**Chi-square**	**p-value**	
≤ 65 Years	20	55	2.94	0.086 ^{NS}	75
>65 Years	31	48			78
Total	51	102			153

NS= Not significant

Analysis of blood pressure readings suggested that there is a negative correlation between blood pressure and satisfaction level for both systolic and diastolic blood pressure as the p value readings for association between SBP and the motivation of the participants (0.842) and association between SBP and the knowledge of the participants (0.477) respectively.

Similarly, the p value readings for association between DBP and the motivation of the participants (0.718) and association between DBP and the knowledge of the participants (0.629) respectively. **Table 7-10**. It has been found that there is no correlation between diet and the motivation of the participants. (p=0.229) and between diet and the knowledge of the participants (p=0.493).

Table 11-12. Treatment satisfaction was evaluated with MISS 21 scale, as per the MISS 21 sore majority of the patients were highly satisfied with their treatment **Table 13.**

TABLE 7: ASSOCIATION BETWEEN SBP AND THE MOTIVATION OF THE PARTICIPANTS

	Motivation				Total
SBP	**low motivation**	**High Motivation**	**Chi-square**	**p-value**	
141-180	38	79	0.042	0.842 ^{NS}	117
120-140	12	23			35
<120	0	1			1
Total	50	103			153

NS= Not significant

TABLE 8: ASSOCIATION BETWEEN SBP AND THE KNOWLEDGE OF THE PARTICIPANTS

	Knowledge				Total
SBP	**Low Knowledge**	**High Knowledge**	**Chi-square**	**p-value**	
141-180	41	76	0.506	0.477 ^{NS}	117
120-140	10	25			35
<120	0	1			1
Total	51	102			153

NS= Not significant

TABLE 9: ASSOCIATION BETWEEN DBP AND THE MOTIVATION OF THE PARTICIPANTS

	Motivation				Total
DBP	**low motivation**	**High Motivation**	**Chi-square**	**p-value**	
≤90	34	67	0.131	0.718 ^{NS}	101
≥90	16	36			52
Total	50	103			153

NS= Not significant

TABLE 10: ASSOCIATION BETWEEN DBP AND THE KNOWLEDGE OF THE PARTICIPANTS

	Knowledge				Total
DBP	**Low Knowledge**	**High Knowledge**	**Chi-square**	**p-value**	
≤90	35	66	0.233	0.629 ^{NS}	101
≥90	16	36			52
Total	51	102			153

NS= Not significant

TABLE 11: ASSOCIATION BETWEEN DIET AND THE MOTIVATION OF THE PARTICIPANTS

	Motivation				Total
Diet	**low motivation**	**High Motivation**	**Chi-square**	**p-value**	
Non veg	28	47	1.45	0.229 ^{NS}	75
Veg	22	56			78
Total	50	103			153

NS= Not significant

TABLE 12: ASSOCIATION BETWEEN DIET AND THE KNOWLEDGE OF THE PARTICIPANTS

	Knowledge				Total
Diet	**Low Knowledge**	**High Knowledge**	**Chi-square**	**p-value**	
Non veg	23	52	0.471	0.493 ^{NS}	75
Veg	28	50			78
Total	51	102			153

NS= Not significant

TABLE 13: DISTRIBUTION OF STUDY PARTICIPANT'S RESPONSES ACCORDING TO SATISFACTORY LEVEL

	Satisfaction Questionnaire						
	Very Strongly Disagree	**Strongly disagree**	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**	**Very Strongly Agree**
Q1	0(0.0%)	0(0.0%)	0(0.0%)	1(0.7%)	19(12.4%)	129(84.3%)	4(2.6%)
Q2	0(0.0%)	0(0.0%)	1(0.7%)	5(3.3%)	109(71.2%)	35(22.9%)	3(2.0%)
Q3	0(0.0%)	0(0.0%)	1(0.7%)	20(13.1%)	50(32.7%)	81(52.9%)	1(0.7%)
Q4	0(0.0%)	0(0.0%)	5(3.3%)	20(13.1%)	88(57.5%)	37(24.2%)	3(2.0%)
Q5	1(0.7%)	0(0.0%)	2(1.3%)	28(18.3%)	65(42.5%)	54(35.3%)	3(2.0%)

Q6	0(0.0%)	0(0.0%)	2(1.3%)	20(13.1%)	80(52.3%)	47(30.7%)	4(2.6%)
Q7	0(0.0%)	0(0.0%)	0(0.0%)	22(14.4%)	76(49.7%)	51(33.3%)	4(2.6%)
Q8	0(0.0%)	0(0.0%)	1(0.7%)	18(11.8%)	77(50.3%)	52(34.0%)	5(3.3%)
Q9	0(0.0%)	3(2.0%)	11(7.2%)	23(15.0%)	67(43.8%)	47(30.7%)	2(1.3%)
Q10	0(0.0%)	1(0.7%)	0(0.0%)	4(2.6%)	23(15.0%)	125(81.7%)	0(0.0%)
Q11	0(0.0%)	1(0.7%)	0(0.0%)	13(8.5%)	100(65.4%)	36(23.5%)	3(2.0%)
Q12	0(0.0%)	0(0.0%)	6(3.9%)	42(27.5%)	70(45.8%)	35(22.9%)	0(0.0%)
Q13	0(0.0%)	3(2.0%)	21(13.7%)	50(32.7%)	60(39.2%)	17(11.1%)	2(1.3%)
Q14	8(5.2%)	27(17.6%)	64(41.8%)	27(17.6%)	24(15.7%)	3(2.0%)	0(0.0%)
Q15	0(0.0%)	4(2.6%)	19(12.4%)	52(34.0%)	51(33.3%)	27(17.6%)	0(0.0%)
Q16	0(0.0%)	1(0.7%)	3(2.0%)	36(23.5%)	76(49.7%)	35(22.9%)	2(1.3%)
Q17	0(0.0%)	0(0.0%)	0(0.0%)	21(13.7%)	86(56.2%)	45(29.4%)	1(0.7%)
Q18	0(0.0%)	0(0.0%)	1(0.7%)	15(9.8%)	55(35.9%)	79(51.6%)	3(2.0%)
Q19	0(0.0%)	0(0.0%)	0(0.0%)	2(1.3%)	26(17.0%)	120(78.4%)	5(3.3%)
Q20	0(0.0%)	0(0.0%)	1(0.7%)	3(2.0%)	93(60.8%)	53(34.6%)	3(2.0%)
Q21	0(0.0%)	0(0.0%)	1(0.7%)	35(22.9%)	60(39.2%)	54(35.3%)	3(2.0%)

DISCUSSION: As the world's population ages, hypertension becomes increasingly prevalent. This tendency can be attributed to age-related changes in blood pressure and rising prevalence of hypertension. The study included 153 aged patients, with nearly equal representation of male and female participants. Many research on the elderly population in developed countries focus on patients aged 65 or older. Our study included participants aged 60 years or older. During data collection, personal interviews with elderly patients revealed a high level of satisfaction in physicians' advice as per MMAS score. Out of 153 patients, 37 patients forget to take the medicine according to the MMAS, making them nonadherent. The frequency of nonadherence in this study was 24.2%. Our study has showed that there is no association between the gender and knowledge of the participants.

We have also observed a positive corelation between the age and the motivation of the participants. (p=0.003). Furthermore, there is no correlation between age and the knowledge of the participants. (p=0.086). It has been observed that there is noassociation between SBP and the motivation of the participants. Furthermore, there is no correlation between SBP and the knowledge of the participants. Moreover, there is no association between DBP and the knowledge of the participants. We also found in our study that there is no association between the diet and the motivation of the patients. Additionally, there is no correlation between the diet and knowledge of the patients. A meta-analysis by researchers from Japan and the US found that eliminating meat from one's diet can significantly lower systolic and diastolic blood pressure. The study also found that vegetarian diets can be a non-pharmacological treatment for hypertension. In our study we conducted a face-to-face interview with aged patients and observed that a lot of elderly patients has good trust in the physician of the hospital. Our study participants reported high levels of treatment satisfaction. Patients reported high levels of satisfaction across all four MISS domains: distress alleviation, communication comfort, compliance intent, and rapport. The study was conducted at a single hospital; thus, some limitations should be considered when interpreting the data. This study relied solely on patient responses during the interview process. We could not confirm the patient's adherence pattern using alternate methods like serum level drug estimation and pill count method. Future research should include subjective and objective validation of patient adherence behaviour. Large multicentric studies are crucial for determining the exact prevalence of nonadherence among elderly hypertension patients.

CONCLUSION: Patients who are dissatisfied with their care are more likely to have poor drug compliance. Thus, achieving high rates of treatment adherence may be difficult due to low treatment satisfaction. It is important to dispel widespread belief that medications are inherently dangerous and to educate patients about the benefits of disease self-management. In order to increase the treatment satisfaction of hypertension patients, additional studies are also advised to pinpoint effective and focused therapies.

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Data Availability Statement: Data supporting the study's results are available upon request from the corresponding author. Data is not publicly available owing to ethical constraints.

CONFLICT OF INTEREST: None

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