Assessment of Knowledge and Adherence to the DASH Diet Among Hypertensive patient: A Cross – sectional Study

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Abstract:
Hypertension, a long-term condition characterized by consistently high blood pressure, affects about 40% of adults worldwide and is a major contributor to cardiovascular diseases such as ischemic stroke and coronary artery disease. Often developing without noticeable symptoms, many individuals with hypertension remain unaware of their condition. Hypertension can be classified as either primary or secondary, with its onset influenced by a combination of genetic, lifestyle, and environmental factors. Managing hypertension often requires changes in diet and lifestyle. One of the most effective non-pharmacological strategies is the Dietary Approaches to Stop Hypertension (DASH) diet. This diet promotes the intake of fruits, vegetables, whole grains, lean proteins, and low-fat dairy products while reducing the consumption of sodium, cholesterol, and saturated fats.

KEY WORDS: DASH Diet, Prevent, Hypertension.

Introduction:

Hypertension, commonly known as high blood pressure, is a chronic medical condition that presents a significant global health challenge. Characterized by consistently elevated blood pressure levels, hypertension is often termed the "silent killer" due to its ability to cause serious damage to the body without presenting noticeable symptoms. If left untreated, it can lead to life-threatening complications such as ischemic stroke, coronary artery disease, heart failure, and kidney disease.[1]

Approximately 40% of adults globally are affected by hypertension, making it one of the most prevalent conditions for which medications are prescribed. Most individuals with hypertension have primary or essential hypertension, which is believed to result from a complex interaction of genetic and environmental factors. Age, family history, obesity, high salt intake, alcohol consumption, and physical inactivity are among the major risk factors for the development of

primary hypertension. In contrast, secondary hypertension arises from identifiable causes, such as kidney disease or endocrine disorders, and can also be triggered by certain medications.[2]

The health implications of untreated hypertension are profound. Elevated blood pressure increases the workload on the heart and arteries, which can lead to complications such as heart attacks, strokes, and organ damage. As such, it is crucial to adopt measures to control and reduce high blood pressure.

Lifestyle modifications, particularly dietary changes, are central to managing hypertension. One well-researched dietary strategy is the **Dietary Approaches to Stop Hypertension (DASH)** diet, which has garnered attention for its effectiveness in lowering blood pressure and improving cardiovascular health. The DASH diet emphasizes a balanced intake of fruits, vegetables, whole grains, lean proteins, and low-fat dairy products, while minimizing sodium, cholesterol, and saturated fats.

Originally introduced by the National Heart, Lung, and Blood Institute (NHLBI) in the 1990s, the DASH diet was tested in a study involving over 500 adults and showed significant improvements in blood pressure. This diet is rich in nutrients like potassium, magnesium, and calcium, which help regulate blood pressure. The study found that participants who followed the DASH diet experienced significant reductions in systolic and diastolic blood pressure, proving its effectiveness as a non-pharmacological approach to hypertension management.[3]

In addition to the DASH diet, other nutritional factors have been shown to influence blood pressure. Supplements such as fish oil and fibre, as well as micronutrients like magnesium and vitamin C, may contribute to blood pressure reduction. However, their effects are often dose-dependent and may vary based on individual health conditions.

NEED OF THE STUDY

The study aims to raise awareness about effective dietary interventions for hypertension management, develop clinical guidelines based on evidence-based practices, and evaluate personalized and community-based interventions. It will address the lack of awareness and adherence among hypertensive patients, leading to better health outcomes and a decrease in cardiovascular illnesses worldwide.[4]

Determine the causes: The Study can help identify the potential causes of Hypertension among Patient Such as Stress, Poor diet, genetics or certain medical condition

Raise Awareness: The Study can increase awareness about the issue of hypertension among patient and its potential impact on their physical and emotional well – being.

Guide Prevention and Treatment: The Study can Provide insights into effective prevention and treatment strategies for Adherence for DASH diet among hypertensive patient, which can help improve their overall health and quality of life.[5]

Objective:
To assess the knowledge on DASH Diet among hypertensive patient
To find out the association Between Hypertensive Patient with Selected demographic variables.

Methodology:
Population and Sample:

A survey – based cross – sectional observational study on the Prevalence of Hypertension in the Age group from 30-60 years and its association with demographic factors and assessing the knowledge regarding DASH Diet.[6]

Study Duration:
A Six – Months study will be conducted

Study Site:
The Study Site is through Survey.

Study Size:
250 responses within the periods of 6 months were collected and studied

Study Criteria:

Inclusion Criteria:

- Patient of Either Gender
- Patient above 18 years
- Patient on the treatment of Hypertension
- Patient on intake of DASH Diet

Exclusive Criteria:

- Patient below 18 ages
- Patient who are Pregnant and lactations
- Patient who are not willing to Participate [7]

Study Procedure:

The answer given by the Patient will be noted in self – designed questionaries for the DASH diet and evaluated by using digits or numbers.
For Succeeding in the dietary approaches to hypertension or the DASH diet, the digit is given below in the table –

Table 1: Scoring System for Evaluating Adherence to the DASH Diet

S.No	DASH diet	Points
1.	Sodium Reduction using Rock Salt	7
2.	Variety of Fruits	6
3.	Assorted Vegetables	5
4.	Whole - Grains	4
5.	Low-Fat or Fat-Free Dairy Options	3
6.	Fats and oils (Olive Oil)	2
7.	Lean Protein and Healthy Fats	1

And, if a Person is taking any of the diets in their dairy life routine, which is injurious for their Health and it is responsible for increasing Blood pressure are given below in another table:

Table 2: Dietary Factors Contributing to Hypertension Risk

S. NO	FOOD RESPONSIBLE FOR HYPERTENSION	POINTS
1.	Sweetened Drinks and Confectioneries	1
2.	Preserved Foods (Pickles)	2
3.	Alcoholic Beverages	3
4.	Excess Sodium Intake	4
5.	Fried or Canned Food Items	5
6.	Rich or Fatty Meals	6
7.	Full-Fat Dairy Products	7

RESULTS

Assessment of demographic characterises of the participants:

The Study Population consist of 250 Patient with Hypertension. And gave their consent to participate in the study period and were assessed for demographic analysis. Gender wise distribution of participants was shown in Table 1 and Figure 1. The study resulted in the majority of Participants (57.2%) belonging to the male gender 143 numbers of participants followed by the (42%) belonging to the female gender with 107 number of participants out of 250 participants.

A: Male: 57.2 %
B: Female: 42.8 %

Table 3: Gender Distribution Among Hypertensive Patients

Total No. Of Patient	No. Of Female (%)	No. of Male (%)
250	107 (42.8%)	143 (57.2%)

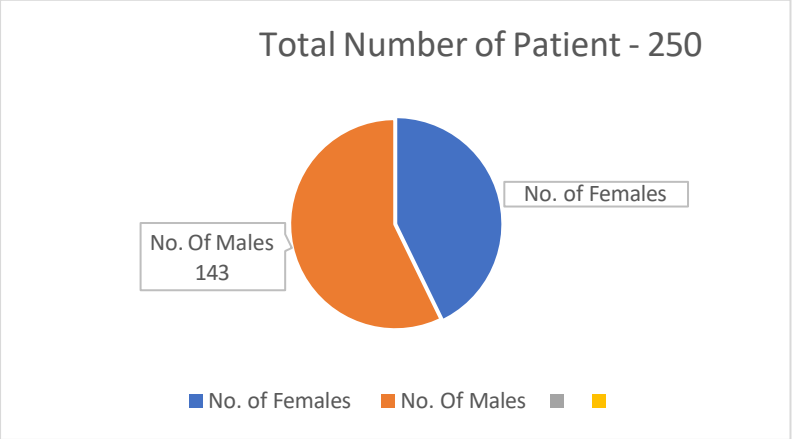

Figure 1. Percentage Distribution Based on Sex Table 4: Age – Wise distribution of participants

Age group yrs.	No. Of Male Patientwith HTN (%)	No. Of Female Patient with HTN (%)	Total No. Patient
30 - 40	33	53	86
40 - 50	57	30	87
50 - 60	53	24	77
Total	143	107	250

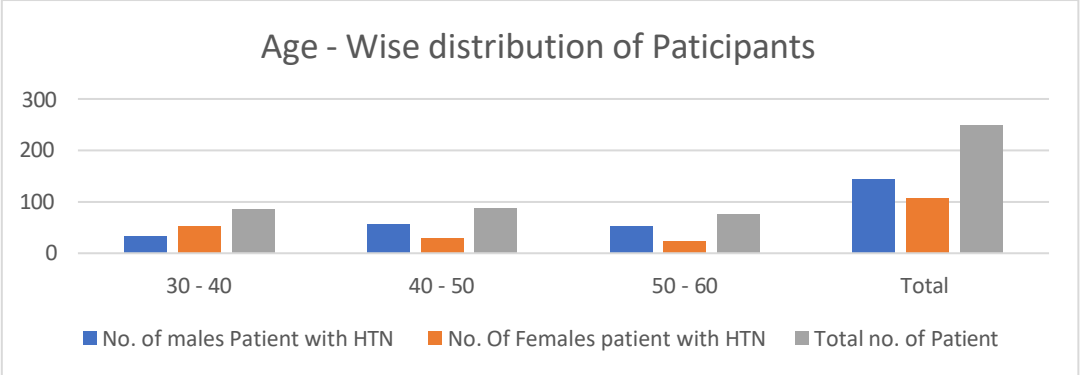

Figure 2: Age – Wise distribution of participants

Table 5: Age Group Distribution of Patients with Hypertension by Employment Status.

Age Group	Housewife	Employed, Services	Retried	Total Number of Patient
30-40	50	20	10	80
40-50	20	30	30	80
50-60	10	20	60	90

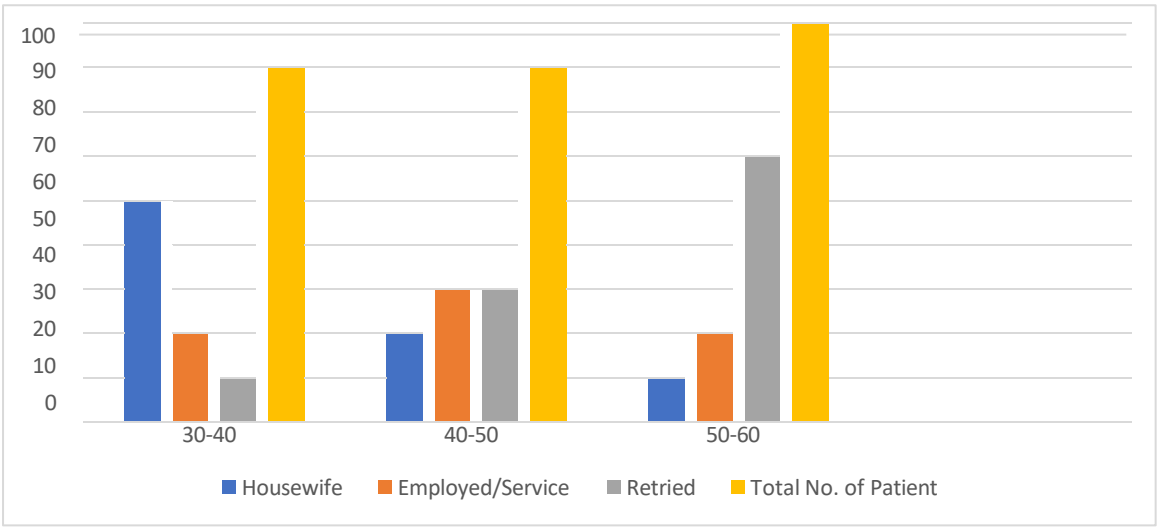

Figure 3: Percentage for Prevalence of Hypertension based on occupation

Table 6 : Demographic Distribution by Age, Gender, and Living Area

Age Group	Ruler		Urban	
	Male	Female	Male	Female
30-40	13	20	20	33
41-50	25	12	32	18

51-60	23	10	30	14

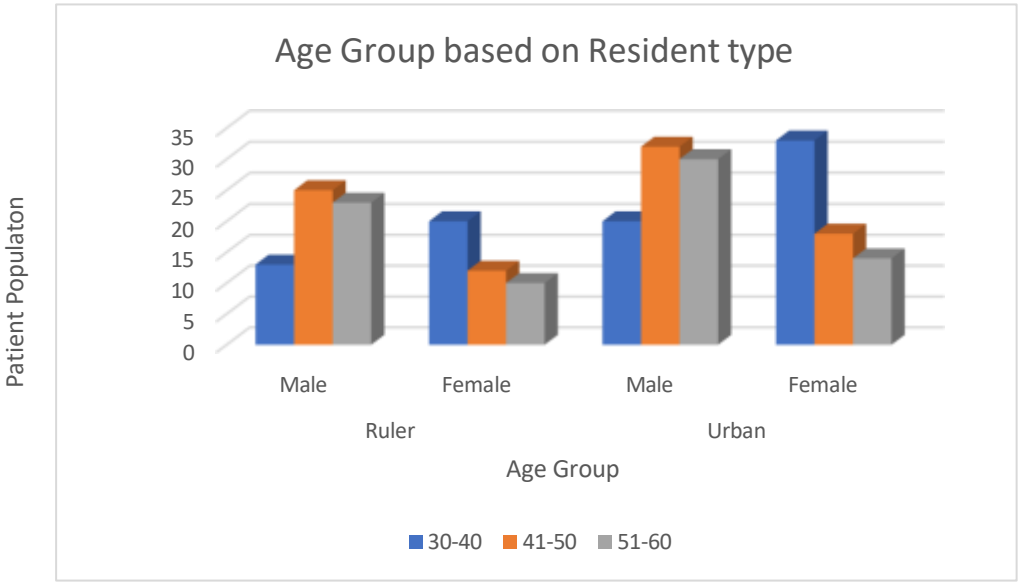

Figure 4: Age Group distribution based on resident type Table 7: Summary of responses for "Any Relevant Disease"

Question	Options	No. Of Participants	Percent
Any Relevant disease:	High Cholesterol	104	41.6%
	Diabetes	18	7.2
	Kidney Disease	11	4.4
	Heart Disease	28	11.2
	None	89	35.6

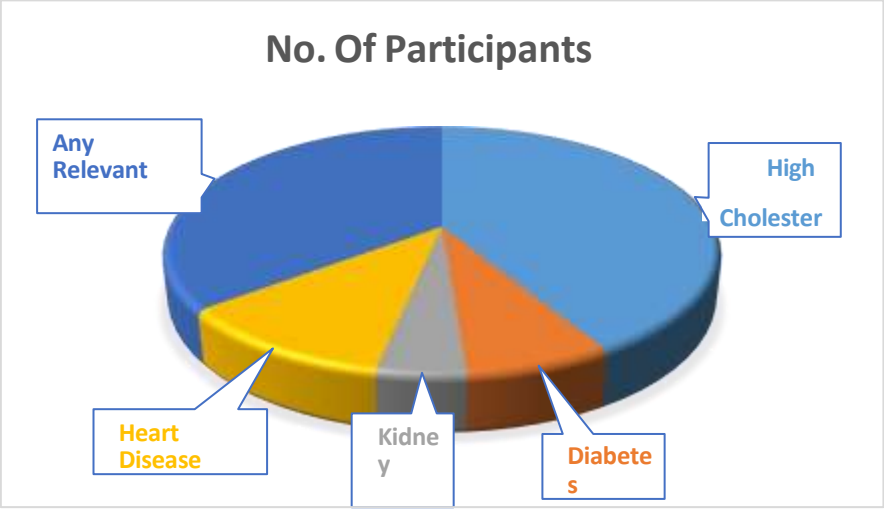

Figure 5: Summary reposes of "Any Relevant disease "

Table 8: Summary of Responses for "Sleeping Hours"

Question	Options	No. Of Participants	Percent
How Many Hours do you Sleep?	3-4 hrs	21	8.4%
	5-6 hrs	62	24.8%
	7-8hrs	120	48%
	>8 hrs	47	18.8%

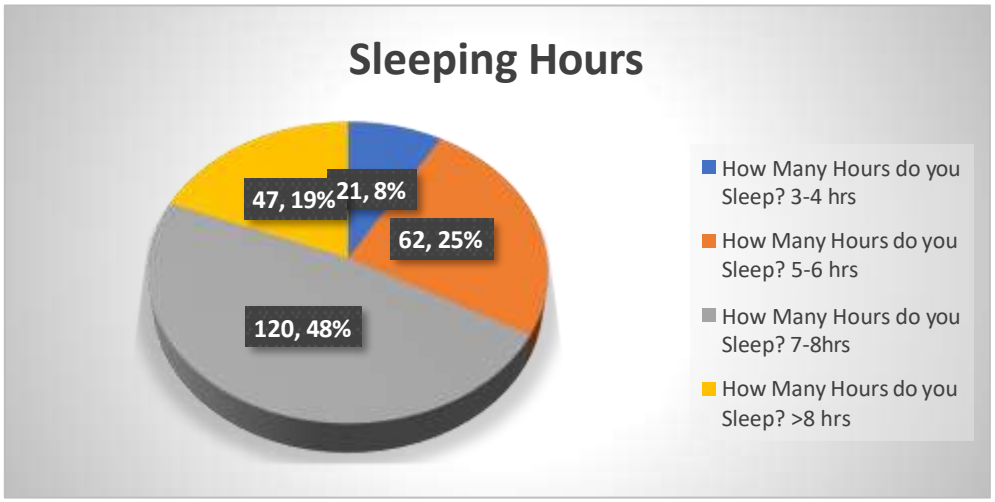

Figure 6: Summary reposes of "Any Relevant disease

Table 9: Summary response of Exercise

Questions	Option	No.Of Participants	Percent
How often so you exercise, do Yoga	**Daily**	**44**	**17.6**
	Sometimes	**139**	**55.6%**

and meditate	**Never**	**73**	**29.2**

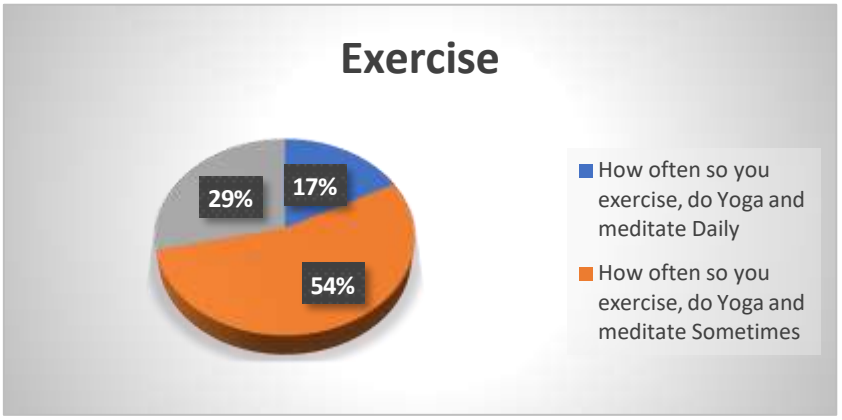

Figure 7: Summary response of "Exercise"

Table 10: Summary response of Daily Diet

Question	Option	No. of Participants	Percent
How is your daily diet	Proper meal	110	44%
	Skip breakfast	55	22%
	Skip Lunch	72	28.8
	Skip dinner	13	5.2

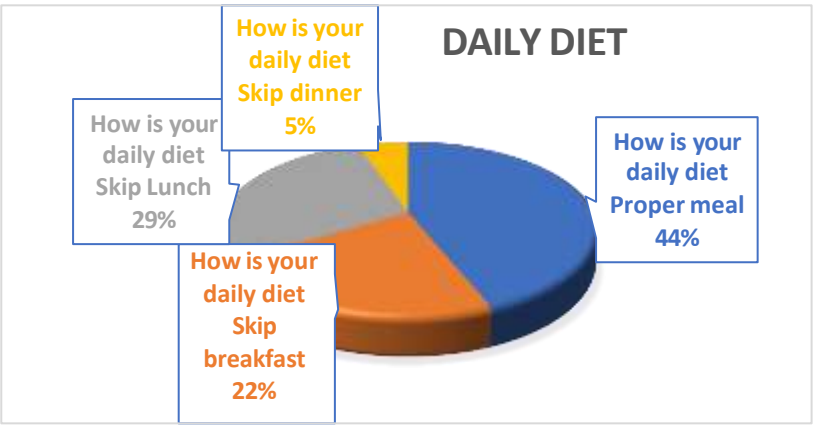

Figure 8: Summary response of Daily

Table 11: Summary response of Food habits

Question	Option	No.Of Participants	Percent

	Vegetarian	110	44%
What is your Food Habit	Non- Vegetarian	140	56%

Figure 9: Summary Response of Food Habit

Table 12: Distribution of Patient Population and Percentage Following the DASH Diet

Patient Population	Counts	% of Patient Population following Dash Diet
High	97	57.39
Medium	51	30.1
Low	30	17.75

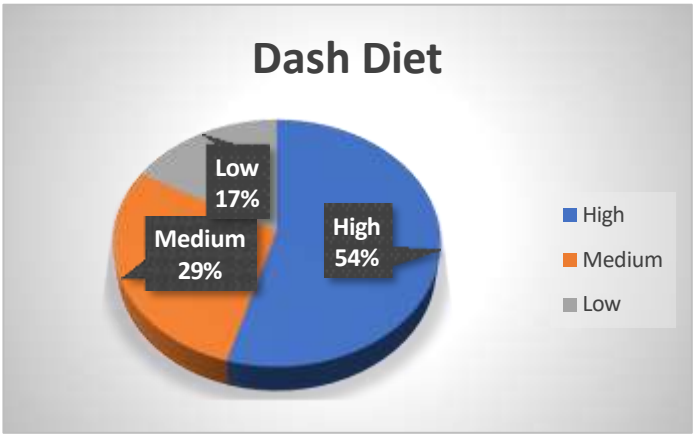

Figure 10: Percentage for the Score of Dash Diet

Table 13: Counts and Percentages by Medication Status and Co-Morbidities

Participants	Counts	Percentage

Patient with Medication	78	46.15
Patient without Medication	15	8.87
Patient with Co-Morbidities	92	54.47

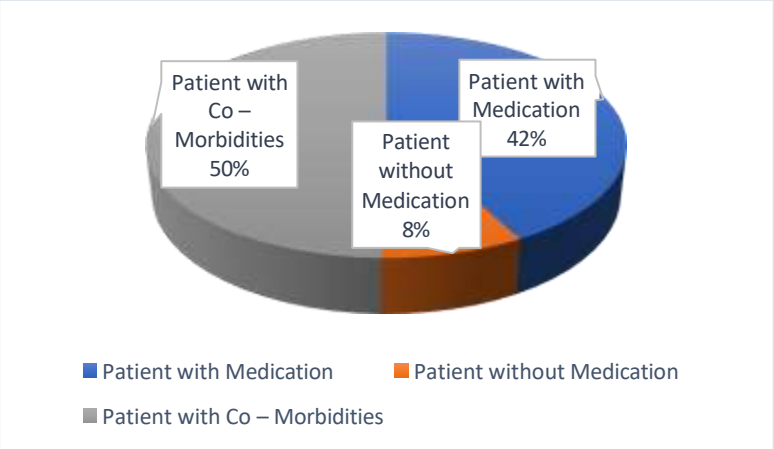

Figure 11: Percentage of patient's presence or absence with medication

Table 14: Detection Methods of Hypertension

Hypertension	**Counts**	**Percentage**
In Routine Medical checkup	34	20.11
Screening Program	51	30.17
By Symptoms/complications	68	40.23
Others	15	8.87

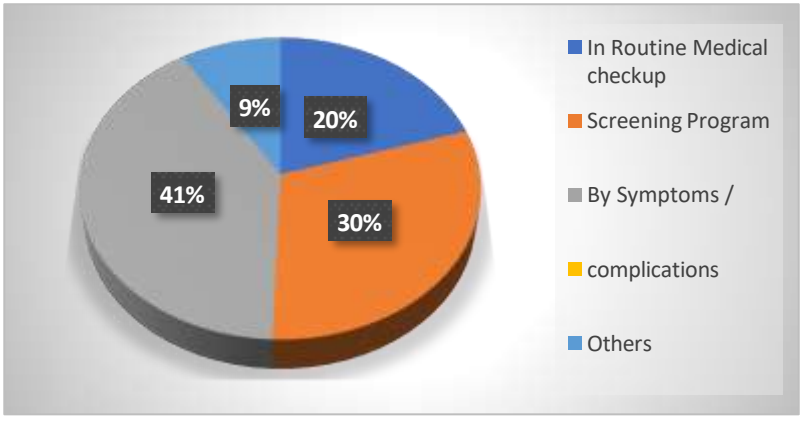

Figure 12: Percentage of how the patients came to know about hypertension

Conclusion:

The study underscores the multifactorial nature of hypertension, influenced by gender, age, employment, lifestyle, comorbid conditions, and place of residence. Comprehensive interventions that include early screening, regular physical activity, dietary modifications, stress management, and integrated comorbidity care are essential for effective hypertension management. This study, which involved 250 hypertensive patients, aimed to assess various demographic, lifestyle, and clinical factors associated with hypertension. The findings highlight critical aspects of the population affected by this condition and provide insight into potential solutions for managing and reducing the burden of hypertension. Gender Distribution is the majority of the hypertensive patients were male (57.2%), while females accounted for 42.8%. This gender disparity emphasizes the need for gender-specific interventions, particularly focusing on male populations who may be at higher risk of developing hypertension. Age-Wise Distribution Hypertension was prevalent across all age groups studied (30–60 years), with the highest concentration found in the 40–50 years group. This demonstrates that hypertension affects individuals in their mid-life stages, underscoring the need for early detection and continuous monitoring, especially as individuals age. Employment and lifestyle appeared to be strongly associated with hypertension. Among housewives, hypertension was most prevalent in the 30–40 age group, while employed individuals and retirees showed higher prevalence in the older age groups. Lifestyle interventions, such as stress management and physical activity, may be particularly beneficial for those in active employment and post-retirement stages. Rural vs. Urban Distribution Both rural and urban populations were affected by hypertension, but urban males aged 40–50 showed higher prevalence, suggesting that lifestyle changes in urban settings—such as sedentary habits, poor diet, and higher stress—may contribute to this condition. Targeted awareness campaigns and interventions for urban populations can be useful to manage and prevent hypertension. Therefore, many patients had comorbidities such as high cholesterol (41.6%), diabetes (7.2%), and heart disease (11.2%), highlighting the need for integrated care that addresses not only hypertension but also its associated conditions. Managing these comorbidities alongside hypertension will help prevent further cardiovascular complications. A significant proportion of patients reported a lack of regular physical activity, with 55.6% exercising only occasionally and 29.2% never exercising. Regular exercise should be promoted as part of hypertension management to improve cardiovascular health and reduce risk factors. with respect to Dietary habits showed a tendency toward unhealthy patterns, with a large portion skipping meals. Furthermore, only 57.39% followed the DASH diet at a high level. Dietary interventions focusing on proper meal patterns and DASH diet adherence are critical for controlling blood pressure. Sleep duration was another important factor, with only 48% getting the recommended 7-8 hours of sleep. Poor sleep is linked with worse blood pressure control, indicating that sleep hygiene should be part of hypertension management strategies. Detection and Awareness large proportion of patients (40.23%) became aware of their hypertension through symptoms and complications, rather than routine screenings. This suggests the need for more widespread hypertension screening programs to catch cases earlier and prevent complications. The American Heart Association strongly endorses the DASH Diet as an effective strategy for managing hypertension and improving overall heart health.

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