

SUMMER INTERNSHIP REPORT

Under lifestyle intervention to reduce the risk and prevalence of hypertension among urban poor of Delhi: Quasi-experimental study

**Implemented by IIHMR, Delhi supported by ICMR,
DELHI**

(18TH April 2022 to 17TH June 2022)

A Report on

Dietary habits and hypertension in individuals above in the urban-poor population of the southwest region of Delhi.

Submitted by

Dr. Disha Bakshi

PGDM (Hospital and Health Management)

2021-2023



International Institute of Health Management Research, New Delhi

Certificate of Approval

The Summer Internship Project of titled “To assess the dietary salt intake and to look at its association with hypertension among individuals of age above 15 in urban poor southwest region of Delhi” at IIHMR DELHI is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.



Dr Pankaj Talreja

Name of the Mentor

Assistant Professor at IIHMR, Delhi

Feedback form

(Completion of summer internship from respective organization)

The certificate is awarded is to

Name: DR. DISHA BAKSHI

In recognition of having successfully completed her
Internship in the department of Public health

Title: TO ASSESS THE DIETARY INTAKE AND ITS ASSOCIATION WITH HTN
AMONG THE INDIVIDUAL OF AGE ABOVE 15YRS IN URBAN POOR, SOUTHWEST
REGION OF DELHI

And has successfully completed her project

Date: 17 June 2022

Organisation: IIHMR, DELHI

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for
learning

We wish him/her all the best for future endeavours



Organization supervisor



Head- HR/Department Head

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I perceive this opportunity as a significant milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement to attain my desired career objectives.

Table of contents

S. no.	CONTENTS	PAGE NO.
	CHAPTER-I: INTRODUCTION	
	Abbreviations.....	7
	Overview of ICMR.....	8
1.	Abstract.....	10
	Background.....	11
	Rationale.....	12
	Objective.....	12
2.	CHAPTER-II: REVIEW OF LITERATURE	13
3.	CHAPTER-III: METHODOLOGY	17
4.	CHAPTER-IV: STATISTICAL ANALYSIS AND FINDINGS	
	Results and Limitations.....	21
5.	CHAPTER-V: RECOMMENDATION AND CONCLUSION	
	Recommendations.....	26
	Conclusion.....	
6.	Chapter VI: REFERENCES	27

Project

Dietary habits and hypertension in individuals in the urban-poor population of the southwest region of Delhi.

New Delhi

**Implemented by IIHMR, Delhi supported by ICMR,
DELHI**

CHAPTER-I: INTRODUCTION

Abbreviations

1. ICMR- Indian Council of Medical Research
2. IIHMR-International Institute of Health and Hospital Management
3. WHO- World Health Organization
4. DASH- Dietary Approaches to Stopping Hypertension
5. HTN- Hypertension
6. ISH- Isolated Systolic Hypertension
7. IDH-Isolated Diastolic Hypertension
8. BP- Blood Pressure
9. ASHA- Accredited Social Health Activist
- 10.NFHS-5- National Family Health Survey-5

About the Organization

- ICMR DELHI



The Indian Council of Medical Research (ICMR), New Delhi, the apex body in India for the formulation, coordination and promotion of biomedical research, is one of the oldest medical research bodies in the world. The Council's research priorities coincide with the National health priorities such as control and management of communicable diseases, fertility control, maternal and child health, control of nutritional disorders, developing alternative strategies for health care delivery, containment within safety limits of environmental and occupational health problems; research on major non-communicable diseases like cancer, cardiovascular diseases, blindness, diabetes, hypertension and other metabolic and hematological disorders; mental health research and drug research (including traditional remedies). All these efforts are undertaken with a view to reduce the total burden of disease and to promote health and well-being of the population.

With this view IIHMR Delhi took an initiative and in collaboration with ICMR DELHI started this project

- **IIHMR DELHI**



The International Institute of Health Management Research, New Delhi is part of the Society for Indian Institute of Health Management Research (IIHMR), which was established in October 1984 under the Societies Registration Act 1958.

- ✓ **CORE VALUES**

- Quality
- Accountability
- Trust
- Transparency
- Sharing knowledge and information

- ✓ **MISSION**

It is an institution dedicated to improvement in standards of health through better management of health care and related programs. It seeks to accomplish this

through management research, training, consultation, and institutional networking in a national and global perspective.

Abstract:

The prevalence of hypertension differs from that in industrialized countries in developing nations. According to community surveys conducted in India, between three and six decades, the prevalence of hypertension increased by almost 30 times among urban residents and by roughly 10 times among rural residents. According to earlier research, several factors, including dietary changes, stress, inactivity, and changes in lifestyle patterns, contribute to the rising trend of this silent killer.

Dietary changes can lower blood pressure, prevent the onset of hypertension, and lessen the chance of problems connected to hypertension. The DASH (Dietary Approaches to Stop Hypertension) diet is one example of a general dietary pattern that the WHO advises following to lower hypertension. This study examines the relationship between dietary practices and hypertension in the urban-rural population of Delhi's southwest. 500 houses and people were chosen from the sampling frame, and 293 of them gave sufficient information to be added to the survey database. According to the findings, more than 90% of people salt their meals during cooking. Hypertension was discovered to affect 20% of the population. Both when cooking and eating food, these respondents added salt. Individual behavioral changes that encourage and support healthier dietary choices are required to lessen the load of difficulties brought on by hypertension.

Keywords: Hypertension, Diet, DASH, dietary pattern, salt, behavioral change

Background:

Most persons with hypertension don't exhibit any symptoms, it is frequently referred to as the "silent killer." That quiet can also be fatal. Heart attack, heart failure, and stroke are just a few of the major issues that high blood pressure can cause. High blood pressure is a factor in about 7.5 million fatalities annually, or 12.8% of all deaths worldwide. In 2025, there will likely be 1.56 billion adults who have hypertension.

It is the leading cause of disease and mortality in India and the leading risk factor for health-related issues. It is thought to be a factor in the 1.6 million annual deaths in India from ischemic heart disease and stroke. One in five Indian women and one in four men suffer from hypertension, according to an NFHS-5 survey, yet only 7% of men and 6% of men who have been diagnosed with high blood pressure are taking medication. The survey also revealed that 46% of men and 33% of women had never had their blood pressure checked.

Unhealthy diets (excessive salt intake, diets high in saturated and trans fats, poor intake of fruits and vegetables), physical inactivity, alcohol and cigarette use, stress, being overweight or obese, and being physically inactive are all modifiable risks factors for hypertension.

According to the WHO, changing one's diet to follow the DASH (Dietary Approaches to Stop Hypertension) eating plan can lower blood pressure by 8 to 14 mmHg. The DASH diet reduces sodium intake to less than 2 grams per day (5 grams of salt per day) to lower blood pressure and the risk of cardiovascular disease, stroke, and coronary heart disease in adults. The DASH diet includes whole grains, poultry, fish, nuts, and low-fat dairy products in addition to fruits, vegetables, and low-fat dairy products (individuals 16 years of age and older)

Rationale:

Dietary risk factors were responsible for 255 million DALYs and 11 million fatalities in 2017. The major dietary risk factors for deaths and DALYs globally and in several countries were high sodium intake (3 million deaths and 70 million DALYs), poor intake of whole grains (3 million deaths and 82 million DALYs), and low intake of fruits (2 million and 65 million DALYs).

Previous research has shown that following a dietary pattern like the DASH diet or a Mediterranean diet, eating less saturated fat and total fat, obtaining sufficient potassium, and reducing the amount of salt in the diet are all effective ways to lower blood pressure or avoid hypertension.

This study aims to assess the association of lifestyle factors (unhealthy diet) with high blood pressure in the urban poor southwest region of Delhi.

OBJECTIVES:**GENERAL OBJECTIVES**

1. To assess the dietary habits with hypertension in the urban- poor population of the southwest region of Delhi.

SPECIFIC OBJECTIVES

1. To find the association between age and salt intake among the sample collected.

2. To find the association between hypertension and salt intake among the sample collected.

CHAPTER-II: REVIEW OF LITERATURE

STUDY	METHODOLOGY	RESULT	Conclusion
<p>Clinical Trial of the Effects of Dietary Patterns on Blood Pressure</p> <p>List of authors. Lawrence J. Appel, M.D., M.P.H., Thomas J. Moore,</p>	<p>Randomized Control Trial: 459 adults with systolic blood pressures of less than 160 mm Hg and diastolic blood pressures of 80 to 95 mm Hg were enrolled. For three weeks, the subjects were fed a control diet that was low in fruits, vegetables, and dairy products, with a fat content. They were then randomly assigned to receive for eight weeks the control diet, a diet rich in fruits and vegetables, or a “combination” diet rich in fruits, vegetables, and low-fat dairy products and with reduced saturated and total fat.</p>	<p>The combination diet reduced systolic and diastolic blood pressure by 5.5 and 3.0 mm Hg more, respectively, than the control diet the fruits-and-vegetables diet reduced systolic blood pressure by 2.8 mm Hg and diastolic blood pressure by 1.1 mm Hg more than the control diet</p>	<p>A diet rich in fruits, vegetables, and low-fat dairy foods and with reduced saturated and total fat can substantially lower blood pressure. This diet offers an additional nutritional approach to preventing and treating hypertension.</p>
<p>The Effect of the Mediterranean Diet on Hypertension: A Systematic Review and Meta-Analysis</p> <p>List of Author Mariela Nissensohn,</p>	<p>The authors accessed and searched PubMed and Scopus databases up to March, 2015. Randomized control trials comparing MD vs low-fat diet were included. The researchers assessed the methodological quality, extracted the valid data, and conducted the meta-analysis following Preferred Reporting Items for Systematic</p>	<p>Six trials (more than 7,000 individuals) were identified. Meta-analysis showed that interventions aiming at adopting an MD pattern for at least 1 year reduced both the systolic BP and</p>	<p>A positive and significant association was found between the MD and BP in adults.</p>

Blanca Román-Viñas,	Reviews and Meta-analyses guidelines	diastolic BP levels in individuals with normal BP or mild hypertension.	
Dietary Salt Intake and Hypertension in An Urban South Indian Population – Authors Name Radhika, RM Sathya, V Sudha, A Ganesan, V Mohan*	The study subjects were recruited from the Chennai Urban-Rural Epidemiology Study (CURES), an ongoing an epidemiological study conducted on a representative population (aged ≥ 20 years) of Chennai City (formerly Madras) in southern India with a population of about 5 million people.	The Prevalence of hypertension was higher among subjects who added >1 teaspoon/day of extra salt to their foods at the table compared to those who did not add any extra salt	Increased salt intake is associated with increased prevalence of hypertension and this association is independent of age, sex, body mass index, total energy and dietary fat intake.
Study of urban community survey in India: growing trend of high prevalence of hypertension in a developing country Shyamal Kumar Das, Kalyan Sanyal, and Arindam Basu	A total of 1609 respondents out of 1662 individuals participated in our cross-sectional survey of validated and structured questionnaire followed by blood pressure measurement	Bivariate analysis showed significant relationship of hypertension with age, sedentary occupation, (BMI), diet, ischemic heart disease, and smoking. Multivariate analysis revealed age and BMI as risk factors, and non-vegetarian diet as protective factor with respect to hypertension	The observed prevalence of hypertension in this study and other studies suggest the need for a comprehensive national policy to control hypertension in India, and, in other similar developing countries

<p>Dietary patterns and hypertension among Chinese adults: a nationally representative cross-sectional study- Author Name Dong Wang, Yuna He, Yanping Li, Dechun Luan, Xiaoguang Yang, Fengying Zhai & Guansheng Ma</p>	<p>A nationally representative sample of 23 671 participants aged 18-59 years was recruited by the 2002 China National Nutrition and Health Survey. Information of participants on physical activities, education level, annual household income, smoking status, and family history of hypertension was collected by interviewer-administrated questionnaires.</p>	<p>Three major dietary patterns, defined as 'Western', 'traditional northern', and 'traditional southern', were identified. Participants with a Western pattern had significantly higher blood pressure. In contrast, participants in the traditional southern pattern presented significantly lower blood pressure compared with counterparts in the lowest quartile.</p>	<p>A positive relationship between the traditional northern pattern and hypertension that was mediated through differences in BMI. In addition, the traditional southern pattern was significantly associated with lower odds of presenting with hypertension.</p>
<p>Prevalence of Hypertension and Adherence to Dietary Approaches to Stop Hypertension Diet Score in Childbearing Age Tunisian Women: A Cross-Sectional Study.</p>	<p>A total of 1689 nonpregnant women, aged 20-49 years, were randomly sampled a regional (Greater Tunis), two-stage, stratified, cross-sectional cluster survey from March 2009 to January 2010. Data on medical history and sociodemographic characteristics were collected using a questionnaire. The average daily intake of energy and nutrients was computed</p>	<p>After adjustment for age, energy intake, and all nutritional covariates, no associations were observed between hypertension and Dietary Approaches to Stop Hypertension diet components.</p>	<p>Though no clear-cut associations between hypertension and environmental or behavioral factors were identified in the study, the association with abdominal obesity and multiparity suggests that interventions</p>

<p>Author Name Jalila El Ati, Radhouene Doggui, Houda Ben Gharbia, and Myriam El Ati-Hellal</p>	<p>using a specific Tunisian food composition database.</p>		<p>aimed at lifestyle modifications to reduce these risk factors could be also useful in the prevention of hypertension</p>
<p>Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017</p>	<p>By use of a comparative risk assessment approach, we estimated the proportion of disease-specific burden attributable to each dietary risk factor (also referred to as population attributable fraction) among adults aged 25 years or older.</p>	<p>High intake of sodium (3 million low intakes of whole grains and low intake of fruits were the leading dietary risk factors for deaths and DALYs globally and in many countries.</p>	<p>This study provides a comprehensive picture of the potential impact of suboptimal diet on NCD mortality and morbidity, highlighting the need for improving diet across nations.</p>
<p>Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop HTN (DASH) diet. DASH-Sodium Collaborative Research Group F M Sacks, L P Svetkey, W M Vollmer, L J Appel, G A B,</p>	<p>A total of 412 participants were randomly assigned to eat either a control diet typical of intake in the United States or the DASH diet. Within the assigned diet, participants ate foods with high, intermediate, and low levels of sodium for 30 consecutive days each, in random order</p>	<p>The DASH diet was associated with a significantly lower systolic blood pressure at each sodium level; and the difference was greater with high sodium levels than with low ones</p>	<p>The reduction of sodium intake to levels below the current recommendation of 100 mmol per day and the DASH diet both lower blood pressure substantially, with greater effects in combination than singly</p>

CHAPTER-III: METHODOLOGY

Study Design:

A cross-sectional study design was used. Mix method (quantitative and qualitative) approach was adopted to generate the required information for the study.

Study Area and Study Population:

The study was conducted in collaboration with the urban primary health center (UPHC) covered under National Urban Health Mission and undertaken in the community served by ASHAs (approximately 500 households) in the southwest region of Delhi. The population of Goyala Vihar, Delhi was taken for the study and the area under 8 ASHA will be studied while we studied the area under PSU-1

Sampling Technique:

Convenient sampling technique was carried out for the study based on feasibility and accessibility to maximize information from the participants.

Eligibility Criteria:

Inclusion Criteria:

- All men and women aged 15 years and above who have been staying in the study area for the past 1 year
- those who provide informed consent to participate in the study.

Exclusion Criteria:

- Pregnant women

- All participants who are currently undergoing treatment for any disease other than Cardiovascular disorders
- Those who do not provide consent for the study.

Study participants would also include service providers – ASHA, ANM, Medical Officer, and other PHC staff.

Study Duration:

18th April to 17th June 2022

Method of Data Collection and Analysis:



- The survey was carried out in 2 consecutive steps:
 - STEP 1 comprised a questionnaire survey. This was a face-to-face interview. Household data and individual data were collected and entered in a Kobo Collect android application, containing a structured questionnaire (11 household questions, 98 individual questions). The survey asked closed-ended questions about demographic information, stress, physical activity, specifics about alcohol and tobacco use, and dietary information (Including consumption of foods contributing to high salt intake, fruit and vegetable consumption, oil and fat consumption, and dietary salt).
 - STEP 2 involved several physical measurements (body weight and height, waist and hip circumference, blood pressure, and heart rate) utilizing particular tests and equipment.

Ethical Considerations- Informed consent was taken from all the participants. All participants were informed about the survey goal and objectives, as well as the procedures that would be applied.

- Procedure:
All participants were visited at home between 05 May and 30, June 2022 by field team members. Every selected participant was informed verbally and in writing about the survey. After obtaining informed consent and applying

exclusion criteria, a questionnaire was carried out with each participant and physical measurements were taken and used to calculate body mass index (BMI) and waist-to-hip ratio (WHR)

- **Assessing Diet:**

To evaluate the dietary habits of the sampled population, questions about the respondents' food consumption patterns, consumption of fruits and vegetables, use of oils and fats in meal preparation, and knowledge, attitudes, and practices regarding dietary salt were asked of them.

Asking about how frequently salt is added to meals during preparation, cooking, or eating helped determine how much salt is consumed daily. The number of salt participants believed they ingested and its relationship to health issues, the significance of limiting salt consumption, and the steps taken to control it were other questions that were put to the participants.

GENERAL FINDING

Observational learning from Community

1. Area had a Mohalla clinic occupied by all basic facilities to provide accessible and affordable treatment. The nearby distance there was a private hospital and a Govt. school for children. Also, the area was well facilitated by public toilets under Sawach Bharat Mission.
2. Majority of the population visit the clinic and were happy and satisfied with the facility. They praised the behavior of the Physician.
3. There was no park and yoga facility for people. Women prefers to stay indoors, while children have no option other than playing in the streets, which was not safe for them as there were open sewage lines along the streets.

4. As per data 57.1% of urban poor lost jobs during Covid and the vulnerability was still seen in the area.



5. Problems due to poor oral hygiene were also noticed among the population due to a lack of awareness and access to dental services.
6. Anganwadi was well functional and workers had to timely report to the authority about food, and children's health through the digital app which proved to enhance connectivity.



7. The diary in the area had poor condition and a had risk of many communicable diseases as there was interaction with animals. The workers were not vaccinated and their health was ignored.

CHAPTER-IV: STATISTICAL ANALYSIS AND FINDINGS

From the 500 households and individuals originally selected from the sampling frame, 293 provided suitable data for inclusion in the survey database. (293/500=58.6%)

Data Analysis: It was determined whether categorical variables were associated using the Pearson chi-square test. According to what was acceptable, the findings were presented as mean (with standard deviation (SD) and/or 95% confidence interval (CI)), median, or percentages. P-values on both sides that were less than 5% were regarded as statistically significant.

Sex and Age Distribution of Respondents:

There were 107 men and 186 women. Younger Participants (15-29), Middle age Participants (30-44), and older age Participants (44-87).

Table1. Sex and age distribution of respondents

Age (Years)	MEN		WOMEN		BOTH SEXES	
	n	%	n	%	n	%
15-29	23	21.4%	44	23.6%	67	22.8%
30-44	42	39.2%	68	36.5%	110	37.5%
44-87	41	38.3%	74	39.7%	115	39.2%

Dietary salt: knowledge, attitudes, and practices:

12.9 percent of respondents admitted to frequently adding salt either before or during meals. (Table2.1).

Women were somewhat more likely than males to always or frequently add salt to their food (14.5 percent).

Table2.1 Add salt always or often before eating or while eating, by age group and sex

Add salt often before eating	MEN		WOMEN		BOTH SEXES	
	n	%	n	%	n	%
Age less than or equal to 44	7	10.7%	16	14.4%	23	13%
Age more than 44	4	9.7%	11	14.8%	15	13%
Total	11	10.2%	27	14.5%	38	12.9%

The majority of respondents (93.8%) said they always or frequently added salt when preparing or cooking food at home. (Table 2.2)

Table2.2 Add salt always or often when cooking or preparing food at home, by age group and sex

Add salt while preparing food	MEN		WOMEN		BOTH SEXES	
	n	%	n	%	n	%
Age less than or equal to 44	51	78.4%	79	71.1%	130	73.8%
Age more than 44	28	68.2%	57	77%	85	73.9%
Total	79	73.8%	136	73.1%	215	73.3%

13% of respondents felt they consumed too much salt or far too much salt (38/293=12.9%).

More than half (157/293=53.5%) agreed that consuming too much salt could result in major health issues.

Table2.3: Chi-square test of adding salt always or often before eating or while eating

Add salt while eating	Age less than 44	Age more than 44	Row Totals
Never	57	40	97
Often	23	15	38
Sometimes	43	27	70
Hardly	52	33	86
Column Total	176	115	291

*The chi-square statistic is 0.1935. The p-value is .978639. The result is not significant at $p < .05$

Table2.3: Chi-square test of Add salt always or often when cooking or preparing food at home

Add salt while cooking	Age less than 44	Age more than 44	Row Totals
Never	2	2	4
Often	71	54	125
Sometimes	20	22	42
Hardly	17	10	27
Frequently	59	31	90
Column Total	109	119	288

*The chi-square statistic is 4.3848. The p-value is .35643. The result is not significant at $p < .05$

Hypertension and salt Relation:

A total of 60 (20.4%) of respondents were found to be Hypertensive, whose either systolic or diastolic or both was greater than WHO recommended normal BP. (140/90 mmHg)

Out of these 60 respondents, around 57 respondents mentioned that they added salt often before eating or while eating or when cooking food at home. (Table3.1)

Table3.1: Chi-square test of salt intake and hypertension

Salt Intake	Hypertensive	Non-Hypertensive	Marginal Row Total
Add salt frequently and often in food	57	223	280
Never add salt	3	8	11
Marginal Column Total	60	231	291

*The chi-square statistic is 0.3093. The p-value is 0.578128. Not significant at $p < 0.05$

Food Consumption:

- Cereals: About 285 respondents of both sexes (97.2%) reported consuming cereals or rice every day.
- Green Vegetables: 29% of respondents consume Green Vegetables every day and 50.5% are consuming weekly.
- Processed food: 82.5% of respondents consume this product only once per week or less frequently. Younger and middle age groups were the main consumers of processed food.
- Non-vegetarian food: 40.9% of respondents consume this product only once per week or less frequently. The percentage of consuming eggs in men was way higher than in women (98%) and a small variation in fish and meat.
- Oil and fat: About 60.7% of respondents consume fat and vegetable oil every day. The percentage of consuming oil and fat in women was higher than in men (66.6%)

Table4.1: Mean and Frequency distribution of Food consumption

	Everyday	Weekly	OCC	Never	MEAN
Cereals	285	6	0	0	1.01
Green Vegetables	85	148	54	4	1.92
Egg	9	91	29	161	3.14
Fish	0	50	37	204	3.50
Meat	2	64	42	182	3.35
Vegetables oils and fat	195	35	43	18	1.59
Processed food	2	42	181	66	3.04

LIMITATIONS

1. Due to time constraints, the sample size was reduced
2. Lack of awareness made it difficult to take data
3. Due to timing issues, most of the members were not available
4. Population was interested in diabetes check

CHAPTER-V: CONCLUSION AND RECOMMENDATION

According to earlier research, hypertension is India's top health risk factor and the biggest contributor to the burden of illness and mortality. In India, it results in 1.6 million fatalities each year. High salt intake significantly increases the risk of high blood pressure. More than 90% of people add salt to meals when cooking, according to the current survey. Hypertension was discovered to affect 20% of the population. While others had isolated diastolic hypertension (IDH), some of them had isolated systolic hypertension (ISH). Both when cooking and eating food, these respondents added salt.

Cooking fat and oil composition have a definite impact on cardiovascular disease. A low-fat diet is suggested for the prevention of CVD. According to the current study, more than half of the population regularly eats fat and vegetable oils. Given that different forms of oil have varying effects on health, it is important to consider how the oil was consumed (used for dressing, cooking, or frying).

RECOMMENDATION

Indian food contains salt from a variety of sources, including salt added during cooking, salt added at the table, salt in pickles, etc. Therefore, it is necessary to design public health initiatives to inform patients to I) avoid consuming too much salt when cooking, II) increase intake of foods low in salt (like fruits and vegetables), and III) avoid consuming too much salt (like pre-prepared/processed foods).

Since hypertension is a primary care issue, it is recognized, treated, and monitored at the primary care level. People should be referred for hypertension diagnosis or therapy based on their blood pressure measurements.

People who have blood pressure that is greater than 140 mm Hg systolic and/or 90 mm Hg diastolic should have it checked again in 1-2 weeks.

People who have blood pressure that is >180 mm Hg systolic and/or >110 mm Hg diastolic should be sent right away to the primary health center or community health center.

Such actions will significantly lessen India's burden associated with hypertension.

References

1. World Health Organization. Hypertension [Internet]. WHO; 2021 [cited 25 August 2021]. Available from: <https://www.who.int/news-room/fact-sheets/detail/hypertension>
2. World Health Organization. World Health Day 2013 Diet, nutrition and hypertension [Internet]. WHO; 2013. Available from: <http://www.emro.who.int/world-health-days/2013/nutrition-hypertension-factsheet-whd-2013.html>
3. Lydia A. Bazzano, Torrance Green, Teresa N. Harrison, and Kristi Reynolds, Dietary Approaches to Prevent Hypertension, National Library of Medicine, 2013 Dec; 15(6): 694–702.
4. Lawrence J. Appel, M.D., M.P.H., Thomas J. Moore et al. A Clinical Trial of the Effects of Dietary Patterns on Blood Pressure, N Engl J Med 1997 April 17; 336:1117-1124 DOI:10.1056/NEJM199704173361601
5. Shyamal Kumar Das,¹ Kalyan Sanyal,² and Arindam Basu³, Study of urban community survey in India: growing trend of high prevalence of hypertension in a developing country, Int J Med Sci. 2005 April 1; 2(2): 70–78.
6. Carmen Sayon-Orea, Silvia Carlos, Miguel Ángel Martínez-González, Does cooking with vegetable oils increase the risk of chronic diseases?: A systematic review, The British journal of nutrition, April 2015; 113(S2):S36-S48
7. Ministry of Health & Family Welfare Government of India, Screening, Diagnosis, Assessment, and Management of Primary Hypertension in Adults in India, 2016 Feb.
8. Bharat Parashar, Nisha Devi, Himani Thakur, HYPERTENSION : A SERIAL KILLER, (IEARJ) Volume 04, Issue 06, 2020 JUNE;E-ISSN: 2456-6713
9. <https://www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/high-blood-pressure-the-silent->
10. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017, The Lancet, VOLUME 393, ISSUE 10184, P1958-1972, MAY 11, 2019

11. Dong Wang, Yuna He, Yanping Li, Dechun Luan, Xiaoguang Yang, Fengying Zhai & Guansheng Ma, Dietary patterns and hypertension among Chinese adults: a nationally representative cross-sectional study, BMC Public Health, 2011 December 14; 925 (2011)
12. dietary risks in 195 countries, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017.” Lancet (London, England) vol. 393,10184 (2019): 1958-1972. doi:10.1016/S0140-6736(19)30041-8
13. Sacks FM, Svetkey LP, Vollmer WM, Appel LJ, Bray GA, ; DASH-Sodium Collaborative Research Group. Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet. DASH-Sodium Collaborative Research Group. N Engl J Med. 2001 Jan 4;344(1):3-10. doi:10.1056/NEJM200101043440101. PMID: 11136953
14. El Ati J, Doggui R, Ben Gharbia H, El Ati-Hellal M. Prevalence of Hypertension and Adherence to Dietary Approaches to Stop Hypertension Diet Score in Childbearing Age Tunisian Women: A Cross-Sectional Study. Biomed Res Int. 2021;2021:6686299. Published 2021 Nov 5. doi:10.1155/2021/6686299