To Study the Physical Activity and Dietary Habits of the Hypertensive Patients in Jammu: An Observational and Analytical Study

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Abstract: *Introduction: The field of nutrition, crucial for human well-being, is increasingly recognized in the context of socioeconomic development. Unhealthy diets contribute to non-communicable diseases (NCDs), now a leading global cause of death. This study focuses on people of Jammu, aiming to assess their dietary patterns, lifestyle, nutritional status, and hypertension prevalence. Methodology: A sample of 100 hypertensive patients in Jammu City underwent multistage random sampling. Data on socioeconomic factors, physical activity, and dietary habits were collected. Analysis: Most respondents were aged 56-70, with 61% reporting sedentary activity. 60% were vegetarian, and dietary patterns revealed high consumption of cereals, pulses, and vegetables. Physical activities included yoga and walking. Conclusion: The study highlights the prevalence of sedentary lifestyles and specific dietary choices among hypertensive individuals. The findings emphasize the need for targeted interventions, promoting physical activity and balanced diets, tailored to mitigate NCD risks in this population.*

Keywords: Nutrition, Non-communicable Diseases, Hypertension, Dietary Patterns, Socioeconomics

1. Introduction

The field of nutrition, as the science of food and its impact on health, has gained significant recognition in recent years and is considered a fundamental pillar of socioeconomic development. Proper nutrition plays a pivotal role in various aspects of human well-being, encompassing cardiovascular health, muscular strength, respiratory function, immune system resilience, wound healing, and psychological equilibrium [1].

A well-balanced diet should provide the essential constituents - carbohydrates, fats, proteins, vitamins, and minerals - necessary for body growth, energy provision, immune defense, and regulatory functions in quantities that align with the body's requirements. Malnutrition, on the other hand, stems from either an inadequate intake of nutrients due to factors such as food scarcity, ignorance, sociocultural elements, or diseases, resulting in conditions like underweight and nutrient deficiencies. Conversely, overconsumption of nutrients, often due to poor dietary habits linked to affluence, leads to issues like overweight and obesity.

Unhealthy diets, characterized by high sugar, salt, and saturated fat consumption, coupled with a sedentary lifestyle, have emerged as major risk factors for cardiovascular diseases and other non-communicable diseases (NCDs). A central factor in diet-induced cardiovascular disease is atherosclerosis, primarily driven by elevated levels of low-density lipoproteins (LDL) in the blood plasma.

Cholesterol, present both in the diet and endogenously synthesized, significantly impacts plasma cholesterol levels.

Excessive dietary cholesterol inhibits a key enzyme involved in cholesterol synthesis, creating an intrinsic feedback system to regulate plasma cholesterol concentration. Diets high in saturated fats lead to increased blood cholesterol levels due to enhanced fat deposition in the liver, which produces additional acetyl-CoA for cholesterol synthesis. Therefore, maintaining a diet low in cholesterol is vital.

Studies, such as the Strong Heart Study, have reinforced the link between dietary components, especially saturated fat, and coronary heart disease (CHD) mortality. Multiple investigations have revealed strong associations between diet and NCD development, with factors like obesity, lack of exercise, poor diet, smoking, and alcohol abstinence contributing to the risk of diabetes and other diseases [2].

Notably, NCDs are now the leading cause of death worldwide, surpassing all other causes combined. The United Nations reports that around one in eight people worldwide, particularly in developing countries, suffered from chronic undernourishment in 2010-2012. Paradoxically, overweight and obesity are now responsible for more global deaths than underweight. Over 1.4 billion adults were overweight in 2008, with a significant proportion being obese. Overweight and obesity constitute the fifth leading risk factor for global deaths, causing millions of fatalities annually and contributing to the burden of diabetes, heart disease, and certain cancers [3].

Tobacco, responsible for one death every six seconds, kills millions prematurely. Urgent action is needed to prevent the estimated deaths of over 175 million people worldwide due to tobacco by 2030. Alcohol, the world's third-largest risk factor for disease and disability, especially in middle-income

countries, is causally linked to various diseases and injuries, contributing to approximately 4% of global deaths.

Physical inactivity has become a global public health issue, with nearly one-third of adults insufficiently active. Approximately 3.2 million deaths annually can be attributed to insufficient physical activity. Raised blood pressure is highly prevalent, particularly in Africa, and is responsible for a significant number of deaths and disability-adjusted life years (DALYs) worldwide [4].

The identification of these major risk factors and the implementation of control strategies have contributed to the decline in NCDs mortality rates in industrialized nations [5]. Dietary regimens, combined with regular physical activity, have emerged as effective tools for preventing and treating NCDs. For instance, the Dietary Approach to Stop Hypertension (DASH) eating plan, when combined with reduced salt intake, has been found to be particularly effective in lowering blood pressure.

A fundamental concept in socio-ecological theory and epidemiological research is embodiment, where external factors experienced throughout an individual's life shape their body's functions and structures. This highlights the importance of evaluating dietary intake, nutritional status, and other factors like anthropometry, clinical assessments, and biochemical markers to comprehensively assess malnutrition [6].

Markets serve as pivotal hubs for the exchange of goods, connecting producers and consumers, and contributing significantly to the economy. Traders represent an essential sector, but studies have shown high prevalence rates of hypertension, physical inactivity, smoking, obesity, and overweight among traders in Nigeria [7]. However, despite research into the lifestyle and NCD prevalence among traders, little information is available on their dietary patterns, which may be linked to the high incidence of NCDs, as they often consume high-energy, dense foods they sell.

This study aimed to assess the dietary patterns, lifestyle, nutritional status, and hypertension prevalence among traders in Sokoto, Nigeria. Hypertension, a chronic medical condition characterized by elevated blood pressure, is a widespread global health issue. High blood pressure can lead to heart and kidney damage, making it a significant public health concern [8].

Evidence indicates that various lifestyle factors, including excessive weight gain, high salt intake, smoking, and alcohol consumption, significantly contribute to hypertension risk [9]. Diet modifications, such as reducing energy, salt, alcohol, and increasing fruit and vegetable intake, can help prevent hypertension. Micronutrients found in dairy products, fruits, and vegetables have also been linked to blood pressure regulation.

The risk of hypertension development is influenced by factors like regular exercise, maintaining a healthy weight, stress management, alcohol moderation, smoking cessation, and adopting a diet low in sodium, rich in fruits and vegetables, and low in fat and sugars.

As food plays a dual role in health and disease, maintaining a healthy lifestyle, knowledge of nutrition, and sound dietary habits are pivotal in managing hypertension and NCDs. Unfortunately, this information remains scarce in developing countries like Nigeria, where hypertension has recently gained recognition as a significant public health concern [10]. This study aimed to assess the body mass index, nutritional knowledge, dietary consumption patterns, and micronutrient status among hypertensive patients attending private outpatient clinics in Jammu City. The results have implications for health and nutrition planning in the region.

2. Objectives

- To find out the correlation of physical activity and Hypertension.
- To correlate the dietary habits with the maintenance of hypertension.

3. Research Methodology

Ethical clearance was taken from the ethical committee of Stephens College of Nursing via the reference number 003-A/RS-SCON/2023

3.1 Sample description:

Sample Size: Total sample of 100 Hypertensive patients was drawn from areas of Jammu city.

Local: The sample for the study was selected randomly from OPDs running in area of Jammu city.

3.2 Sample technique

Multistage random sampling techniques were employed for selecting the sample.

3.3 Criteria

3.3.1 Inclusion criteria
- Patients of age 45 years and above irrespective of their gender.
- Participants with a diagnosis of hypertension for at least 3 months.

3.3.2 Exclusion criteria

- Patients below 45 years were excluded.
- Patients who agreed to participate in the study.
- Patients who could not respond. Example: too sick to be interviewed.

4. Results and Analysis

Table 1: Socioeconomic Profile of the Subjects

General profile	No. of subjects	%Age
Age		
40-45 years	11	11
46-50 years	19	19
51-55 years	22	22
56-60 years	28	28
61-70 years	20	20
Gender		
Male	60	60
Female	40	40
Educational Qualification		
Below Matric	13	13
Matric	27	27
Higher secondary	14	14
Graduate	26	26
Postgraduate	20	20
Type of family		
Joint	30	30
Nuclear	70	70
Occupation		
Govt. Employee	44	44
Private Sector	6	6
Business	40	40
Retired	10	10
Monthly Occupation		
10000-20000	36	36
20000-30000	24	24
Above 30000	40	40

Above table shows that age of respondent's maximum number of respondents is in 56-60 years (28%), 22% in 51-55 years, 20% in 61- 70 Years of age, 19% of the respondents in 46-50 years of age and rest (11%) in 40-45 yrs. Most of the respondents are male 60% and 40% female. Most of the respondents are Matric and graduate (27% and 26%), 20% of the respondents said post graduate and 13% are below matric.

Most of the family is nuclear i.e., 70% and 30% of the respondents are from joint family. 44% of the respondents is businessmen and govt. employee respectively and 6% of the respondents in private sector and retired respectively. 36% and 40% of the respondents fall under income is 10000-20000 and Above 30000 respectively. 24% of the respondents fall under income group of 20000-3000.

Table 2: Daily Physical Activity being done by patients for management of Blood Pressure

Daily Physical Activity	No.	%age
Sedentary	61	61
Moderate	20	20
Heavy	19	19
Activity Done		
Yoga	21	42
Exercise	-	-
Meditation	-	-
Walk	29	58

Above table shows that daily physical activity being done by patients for management of blood pressure. 61 % of the subjects fall under sedentary physical work activity and 20% and 19% of the subjects fall under moderate and heavy physical work respectively. 58% of the subjects had gone for walk and 42% of the subjects had done yoga.

Table 3: Food Pattern and daily consumption of meal pattern being followed

Food Pattern	No. of Subjects	%age
Vegetarian	60	60
Non-Vegetarian	40	40
Meal Consumption Pattern		
3 Meals	40	40
5 Meals	10	10
Less than 3	20	20
More than 5	30	30

Above table shows that food pattern and daily consumption of meal pattern being followed. Maximum respondents said they are vegetarian 60%, 40% of the respondents said non-vegetarian 40% of the respondents are 3 Meals, 30% of the respondent are more than 5, 20% of the respondent are less than 3 and 10% of the respondent are 5 meals.

Table 4: Food Habits (Before Physical) Habit of consuming fruits

Daily	56	56
Once a week	-	-
Twice a week	44	44
Monthly	-	-

The above table shows that habit of consuming fruits. 56% of the respondents consume fruit daily before exercise and 44% of the respondents consume fruit twice a week before exercise.

Table 5: Habit of consuming green leafy vegetable

Daily	12	12
Once in a week	8	8
Twice in a week	80	80
Monthly		
Habit of adding salt to Cooked foods		
Yes	64	64
No	36	36

Above table depicts the habit of consuming green leafy vegetables. A maximum of 80% of respondents consume vegetables twice a week and 8% of the respondent consume daily and once in a week respectively. 64% of the subjects consume salt and 36% of the subjects did not consume salt in their diet. Maximum number of subjects consume cereals and pulses daily.

Table 6: Frequency of food stuff consumed per week

	Daily	Once a week	Twice a week	Thrice a week	4 Time A week	Occasionally
Cereals: -	100%					
Pulses: -	100%					
Green leafy Vegetables: -	8%	12%	80%			
Other vegetables	93%				7%	
Root & Tubers	85%				15%	
Fruits: -	30%			40%	30%	
Milk and Milk Products: -	77%				23%	
Animal Food		40%				
Fat and Oil	100%					

This table depicts 100% of the subjects' consumed cereals and pulses daily respectively. Maximum numbers of the subjects consumed green leafy vegetables i.e., 80% twice a day and 8% and 12% of-the subjects consumed daily and once a week green leafy vegetable respectively. 93% and 85% of the subjects consumed other vegetables and root & tubers daily. 77% of the subjects consumed milk and milk products daily. Only 40% of the subjects consumed animal food. 100% of the subjects consumed fat and oil daily. The maximum number of subjects consumed one type of green leafy vegetables and other vegetables once a week and some subjects consumed vegetables twice a week and very few consumed thrice a week. The maximum number of subjects consumed roots and tubers (i.e., Onion) daily but some of the subjects consumed other types of roots and tubers once a week and sometimes thrice a week. Maximum number of subjects consumed fruits occasionally and some of the subjects consumed fruits thrice a week also. Maximum number of subjects consumed milk and milk products and fat and oils daily.

5. Conclusion

The research methodology involved a sample size of 100 hypertensive patients in Jammu City, with a focus on physical activity, dietary habits, and socioeconomic factors. The analysis and interpretation of the data revealed several key findings:

Socioeconomic Profile:
1) Most of the respondents were in the age group of 56-60 years, with a significant representation in the 51-55 and 61-70 age groups.
2) The sample consisted of 60% males and 40% females.
3) Educational qualifications varied, with a notable proportion having completed Matric or higher.
4) Most respondents belonged to nuclear families, and the occupational distribution included government employees, businesspersons, and those in the private sector.

Physical Activity and Hypertension:
1) 61% of the subjects reported sedentary physical activity.
2) Yoga and walking were common activities undertaken by respondents for managing blood pressure.

Dietary Patterns:
1) 60% of respondents identified as vegetarian, while 40% were non-vegetarian.
2) The majority consumed three meals a day, with a significant proportion having more than five meals.

3) Fruit consumption was prevalent, with 56% consuming fruit daily before exercise.
4) Green leafy vegetables were consumed by 80% of respondents twice a week.

Meal Consumption Patterns:
1) The frequency of daily consumption of various food items was generally high, with 100% for cereals and pulses.
2) Other vegetables and root/tubers were consumed daily by a high percentage of subjects.
3) Milk and milk products were consumed by 77% of respondents daily.
4) Only 40% of subjects reported consuming animal food, while fat and oil were consumed daily by all participants.

6. Conclusion and Implications

1) The prevalence of sedentary lifestyles and dietary choices, such as high fruit and vegetable consumption, indicates a need for targeted interventions to improve overall health.
2) The findings underscore the importance of promoting physical activity, especially among individuals with hypertension, and encouraging balanced dietary practices.
3) The identified patterns serve as a foundation for public health planning and interventions tailored to the specific needs of this population, aiming to mitigate the risk of non-communicable diseases, particularly hypertension.

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