IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A CROSS SECTIONAL STUDY TO ASSESS THE DIETARY HABITS, BODY MASS INDEX AND BLOOD PRESSURE AMONG HYPERTENSIVE CLIENTS RESIDING AT MUTHIALPET, PUDUCHERRY, INDIA

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Abstract: Hypertension is a medical condition in which blood pressure is chronically elevated. According to WHO World Health Report 2002, there are approximately 600 million people suffering from hypertension in the world. It causes an estimated 50 millions premature deaths and 13% of global fatalities worldwide. This study aimed to assess the dietary habits, body mass index and blood pressure among hypertensive clients residing at Muthialpet, Puducherry, INDIA. ***Methods:*** *Cross-sectional Survey design was used among 30 hypertensive patients (patients with a confirmed diagnosis of hypertension for at least six months or with current blood pressure ≥ 140/90 mmHg). Data were collected using Semi structured Questionnaire consists of Demographic variables, BMI Assessment, Dietary habit during the past month.* ***Results:*** *With regard to the assumption of this study, a statistically significant relationship was found between Fatty foods consumption, Fruits, Vegetable, Salty foods and Systolic Blood Pressure (SBP) and diastolic blood pressure (DBP). BMI has not found statistically significant relationship with either Systolic or Diastolic Blood pressure at p<0.05.* ***Conclusion :*** *Lifestyle related risk factors such as consumption of unhealthy diets were evident of increase in Systolic Blood Pressure and Diastolic Blood Pressure of hypertensive patients.*

Key Words: BMI, Fatty foods consumption, Fruits, Vegetable, Salty foods and Systolic Blood Pressure (SBP) and diastolic blood pressure (DBP)

I. INTRODUCTION

Hypertension is a medical condition in which blood pressure is chronically elevated. According to World Health Organization (WHO) criteria, the systolic blood pressure (SBP) of a person equals 140 mmHg or above and diastolic blood pressure (DBP) 90 mmHg or above is considered a case of hypertension. According to WHO World Health Report 2002, there are approximately 600 million people suffering from hypertension in the world. It causes an estimated 50 millions premature deaths and 13% of global fatalities worldwide. High blood pressure contributes 10.9% of disability-adjusted life years (DALYs) in developed countries, whereas 5% in developing countries with low mortality rates. Cardiovascular disease is one of the major leading causes of deaths in developed countries. In a day, a young adult in the age group of 20 to 45 years is expected to shed 1,000 calories on work-related activities. Poor physical activity coupled with high calorie food, high salt content and fatty food intake, serve as

drawbacks. Thus this study was carried out to assess the dietary habits, body mass index and blood pressure among Hypertensive clients residing at Muthialpet, Puducherry, India

Statement Of The Problem

"A cross sectional study to Assess the Dietary Habits, Body Mass Index and Blood Pressure among Hypertensive clients residing at Muthialpet, Puducherry".

Objectives

1. To describe the socio-demographic characteristics of hypertensive patients
2. To describe the body mass index (BMI) of hypertensive patients
3. To determine the relationship between dietary habits, BMI and blood pressure.

Materials and Methods:

A Quantitative Non experimental Descriptive Cross-sectional Survey design was used in this study. The population of the study were hypertensive patients (patients with a confirmed diagnosis of hypertension for at least six months or with current blood pressure ≥ 140/90 mmHg). 30 hypertensive patients were selected by purposive sampling technique. Data were collected using Semi structured Questionnaire consists of Demographic variables, BMI Assessment, Dietary habit during the past month. Consent was obtained from participants before collecting data from them. The participants were selected based on inclusion criteria of HT patients without complication and who were available at the time of data collection. The details of HT patients were obtained from PHC, Muthialpet, Puducherry. House to house survey was conducted to identify the clients with Hypertension. Purpose of the study was explained and the data regarding dietary habits, height and weight was measured using semi structured interview questionnaire. Each interview took about 10 – 20 minutes.

Data Collecting Tool:

Semi Structured Questionnaire

Semi Structured questionnaire was used as a tool for collection of data. The questionnaire format was modified for greater ease of understanding and clarity from a standard questionnaire. The questionnaire used in this study consisted of the following four parts:-

Part I : Socio-demographic

Part II : BMI Assessment

Part III : Dietary habit during the past month

Part I: Socio-demographic part

This part elicited data about the non-modifiable factors such as age, gender, family history, as well as modifiable factors such as education, occupation and family income. Questions asked in this part are quite clear and straight.

Part II: Dietary habit during the past month

Questions regarding dietary habits concerned, first food preferences of food and, second frequency of food consumption. For this study, food was classified into fatty food, fruits, vegetables and salty food. For each of these categories a list of food items was prepared. Since patients might not have been aware of, or familiar with macronutrients, they were allowed to select the food items they consumed. Frequency of food intake was recorded in the form of days per week and number of times per day. With regard to frequency of food consumption, 0, 1, 2 and 3 points were awarded for intakes of food never, less than 3 days per week, 3 to 5 days per week and 6 days or more per week respectively.

With regard to frequency in terms of number of times per day, it was divided into three categories namely never, less than twice per day and twice a day or more. The points given to them were 0, 1 and 2 respectively.

Respondents were also asked about the addition of salt and fat to their cooked food. The answers were recorded in the form of "yes or no".

Alcohol consumption behavior was also addressed in the questionnaire. Question was asked in the form of "yes" or "no". If the answer was 'no', then it was not necessary to ask further questions and was advised to stop interview. In case of answer 'yes', it was asked to specify the type of alcohol they consumed, frequency of consumption in terms of days per week and quantity of alcohol in terms of number of drinks (glasses) per day.

Data Analysis

After collecting the data, its statistical analyses were performed

Statistical Method

Univariate analysis

Descriptive Statistics was used to calculate frequency, percentage, mean, median and standard deviation of independent variables such as socio-demographic factors (age, gender, occupation, education, income, family history), dietary habit, alcohol consumption as well as dependent variables (SBP and DBP).

Bi-variate analysis

Since independent variables in the data were ranked, non parametric test was used. Spearman rank correlation coefficient analysis was used to find the relationship between independent variables (socio-demographic factors, dietary habit) and dependent variables (SBP and DBP). The level of significance for statistical analyses was set at $p<0.05$.

RESULTS OF THE STUDY

The results revealed that, 36.67% were aged above 60 years, while 6.667% of participants were aged between 31 - 40 years, 73.3 % of all participants were home maker, about 16.7% of the participants were not aware of hypertension and 40% reported that no history of Hypertension.

n=30

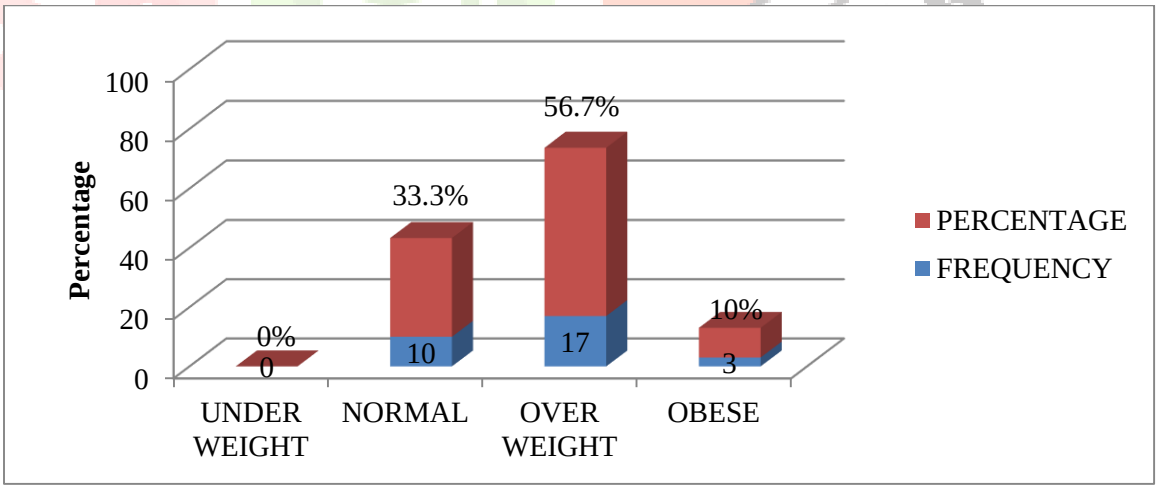

Fig 1: Frequency and Percentage Distribution of Hypertensive Patients according to their Body Mass Index.

Fig.1 The minimum and maximum values of BMI were 19 and 31.5 kg/ sq. meter respectively with mean value 26 kg/ sq. meter and standard deviation 3.04 kg/ sq. meter. A majority of participants were found to be either overweight 56.7% or obese 10%, 33.3% of the participants were found to be normal, and none of them underweight. It reveals that 67.7 % of participants were above the normal Body Mass Index.

Table 1: Descriptive statistics for Systolic Blood pressure and Diastolic Blood pressure

n=30

Blood pressure	Min	Max	Mean	S. D.
Systolic Blood Pressure	110	180	136	14.04
Diastolic Blood Pressure	60	110	87.3	10.15

Table 1 reveals that, The mean values of SBP were 136mmhg and standard deviation 14.04. The mean values of DBP were 87.3 with standard deviation 10.15.

Table 2: Frequency and Percentage distribution of Hypertensive Patients according to Fatty food, Fruits intake, Vegetable and Salty Food intake **n=30**

S. No	Dietary habits	Frequency	Percentage
1	**Fatty food intake (Days per week)**		
	less than 3 days per week	13	43
	3 to 5 days per week	12	40
	6 days or more per week	1	4
	Never	4	13
	Fatty food intake (Times per Day)		
	Only once a day	26	86.7
	Two or more times per day	0	0
	Never	4	13.3
2	**Fruits intake (Days per week)**		
	less than 3 days per week	16	53
	3 to 5 days per week	7	23
	6 days or more per week	4	13
	Never	3	10
	Fruits intake (Times per Day)		
	Only once a day	27	90
	Two or more times per day	0	0
	Never	3	10
3	**Vegetables intake (Days per week)**		
	less than 3 days per week	13	43
	3 to 5 days per week	7	23
	6 days or more per week	9	30
	Never	1	3.3
	Vegetables intake (Times per Day)		
	Only once a day	27	90
	Two or more times per day	2	6.7
	Never	1	3.3
4	**Salty food intake (Days per week)**		
	less than 3 days per week	12	40
	3 to 5 days per week	12	40
	6 days or more per week	0	0
	Never	6	20
	Salty food intake (Times per Day)		
	Only once a day	27	90
	Two or more times per day	0	0
	Never	3	10

Alcohol consumption

One participant 3.3% found consuming alcohol reported drinking beer, once a week ranged from 1 bottle to 2 bottles.

Table 3 : Analysis of relationship between dietary habits and increase blood pressure

Correlation coefficient of SBP and DBP with dietary habits.

Dietary Habits & BMI	Blood pressure (mmHg) Correlation coefficient (ρ)	
	SBP	DBP
Fatty foods		
Days per week	-0.368*	-0.418*
Time Per day	0.0059	-0.237
Fruits		
Days per week	-0.346*	-0.305*
Time Per day	0.154	0.396
Vegetables		
Days per week	-0.35*	-0.392*
Time Per day	-0.02*	-0.021*
Salty foods		
Days per week	-0.24*	-0.26*
Time Per day	0.18	0.06
BMI	0.334	0.653

* p-value < 0.05

Conclusion

The study aimed to ascertain the extent and nature of hypertensive patients and their dietary habits. Its objective was to examine the relationship of dietary Habits and BMI with Blood Pressure.

The minimum and maximum values of BMI were 19 and 31.5 kg/m^2 respectively with mean value 26 kg/m^2 and standard deviation 3.04 kg/m^2. A majority of participants were found to be either overweight 56.7% or obese 10%, 33.3% of the participants were found to be normal, and none of them underweight.

With regard to the assumption of this study, a statistically significant relationship was found between Fatty foods consumption, Fruits, Vegetable, Salty foods and Systolic (SBP) and diastolic blood pressure (DBP). BMI not had a statistically significant relationship with either Systolic and Diastolic Blood pressure at $p<0.05$.

It can therefore be concluded that lifestyle related risk factors such as consumption of unhealthy dietary pattern such as high Fatty and Salty foods consumption, and inadequate consumption of Fruits and Vegetables were found evident in elevation of Systolic (SBP) and diastolic blood pressure (DBP) among hypertensive patients.

Recommendations:

- Consumption of diets rich in fruit and vegetables has been proven effective in promoting good health and preventing disease, and produces a potent antihypertensive effect. Programmes encouraging healthy dietary habits should be promoted at community level, as well as in clinical practice.
- Weight reduction should be promoted and facilitated at both community level and in clinical practice.
- Blood pressure screening programmes for early detection and effective management of hypertensive patients should be organized in order to prevent later complications associated with hypertension.
- Health education and counseling programmes for both patients and the public should be developed in order to increase awareness regarding causes, consequences, prevention and control of hypertension.

Acknowledgement :

Dr. Rebecca Samson, Dean, College of Nursing, PIMS, and Dr. Navaneetha, Professor, Department of Community Health Nursing, College of Nursing, PIMS for the guidance and support. The participants from Muthialpet, Puducherry, for the cooperation to carry out this research. Faculty and Students of College of Nursing, PIMS for their support and cooperation in community to conduct this study.

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