"ASSOCIATION BETWEEN BODY MASS INDEX AND HYPERTENSION IN A VIEW TO PREPARE INFORMATION BOOKLET ON PREVENTION OF COMPLICATIONS AMONG HYPERTENSIVE PATIENTS"

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ABSTRACT

Introduction: Hypertension has become a systemic disease with more incidence and prevalence rate among the modern generation. Dietary and lifestyle changes can lower blood pressure and decrease the risk of health complications, although treatment with medication is still often necessary in people for whom lifestyle changes are not enough or not effective. Dietary and lifestyle changes can improve blood pressure control and decrease the risk of health complications, although drug treatment is still often necessary in people for whom lifestyle changes are not enough or not effective. A number of important contributory factors for hypertension have been identified, including overweight/obesity, excessive dietary sodium intake, low physical activity, smoking, and high alcohol intake. Previous studies have shown that being overweight or obese is associated with a higher risk for hypertension. Hypertension, a condition developed as a result of high blood pressure and is strongly correlated with Body Mass Index. Obesity was noted to be a single best predictor of hypertension incidence, and was regarded as a major controllable contributor to hypertension. Overweight and obesity is conveniently determined from Body Mass Index. **Research Methodology:** The study was conducted among hypertensive patients, for assessing the association between Body Mass Index and Hypertension. At first a rapport was established with the patients and the purpose of the study was explained to them. The sample of 100 was selected by using non- probability convenient sampling technique. On the first day of data collection, the investigator introduced him and explained the nature, purpose of the study to the clients. Verbal and written Consent was obtained to participate in the study and confidentiality of their responses was assured. Hypertensive patients were identified and their blood pressure, height, weight and abdominal girth were

collected. Demographic variables and clinical variables were collected using demographic variable proforma and clinical variable proforma. Body Mass Index was calculated according to the universally accepted formula. **Result :** On analysng data, a strong association between Body Mass Index and Hypertension was found. Regarding socio demographic variables there was association between Age, sex, occupational status and marital status with hypertension. Whereas, no association was there for educational level, residing place, family income and type of family with Hypertension. Regarding Clinical variables, there was association between Type of food and Frequency of mealwith hypertension. Whereas no association was found for Co morbid illness and Common cooking methods with Hypertension. **Conclusion:** The study revealed that there is association between age, sex, occupational status and marital status with hypertension whereas, no association was found for educational level,residingplace, family income and type of family with Hypertension. On analyzing data, we can deduce that 42% of the sample were overweight 52% were of normal weight and 6 % were underweight .There is significant association between Systolic blood pressure and Body Mass Index. There is significant association between Diastolic blood pressure and Body Mass Index. Hence the researcher concluded that the is an association between Body Mass Index and Hypertension.

Keywords: H: Hypothesis, df: Degree of freedom

BACKGROUND OF THE STUDY

Globally, high blood pressure is estimated to cause 7.1 million deaths, about 13% of the total, according to world health organization. About 62% of cerebrovascular disease and 49% of ischemic heart disease are attributable to suboptimal blood pressure. Overweight and obesity increases the risk of high blood pressure, coronary heart disease, ischemic stroke, Type II diabetes mellitus and certain cancers. Worldwide about 58% of diabetes mellitus and 21% of ischemic heart disease are attributable to Body Mass Index over 21 kg/ meter square. The relationship between Body Mass Index and Blood pressure has long been the subject of epidemiological research

High blood pressure is the most common chronic medical problem prompting visits to primary health care providers in USA. The American Heart Association estimated the direct and indirect costs of high blood pressure in 2020 as $76.6 billion. In the US 80% of people with hypertension are aware of their condition, 71% take some antihypertensive medication, but only 48% of people are aware that they have hypertension adequately control it. Adequate management of hypertension can be hampered by inadequacies in the diagnosis, treatment, and/or control of high blood pressure. Health care providers face many obstacles in achieving blood pressure control, including resistance in taking multiple medications to reach blood pressure goals. People also face the challenges of adhering to medicine schedules and making lifestyle changes. Nonetheless, the achievement of blood pressure goals are possible, and most importantly, lowering blood pressure significantly reduces the risk of death due to heart disease and stroke, the development of other debilitating conditions, and the cost associated with advanced medical care.

About 33% urban and 25% rural Indians are hypertensive. Of these, 25% rural and 42% urban Indians are aware of their hypertensive status. Only 25% rural and 38% of urban Indians are being treated for hypertension. One-tenth of rural and one-fifth of urbanIndian hypertensive population have their blood pressure under control. The pooled prevalence of hypertension for the rural and urban south Indian population was 21.1% and 31.8% respectively.

In Tamil Nadu, it is estimated that 40 percent of the adult population in urban areas and 25 percent of the adult population in the rural areas are affected by hypertension. The males are predominantly affected with ratio of 2:1to females. The astonishing fact is 30 percent of the affected people are not getting treatment.

NEED FOR THE STUDY

Hypertension emerges from a complex interplay of genetic, environmental and behavioral factors. Owing to the hereditary component of hypertension, the disorder is considered to have its origin in the childhood. Children and adolescents with high Blood Pressure tend to maintain those levels of Blood Pressure in adulthood. As the symptoms of childhood and adolescent hypertension are largely nonspecific, most children with hypertension are likely to be undiagnosed since there is no established standard for hypertension among adolescents.

In the modern world all our activities are aimed at economic development. As a developing nation, India has to give more importance to the health of the individuals. Hypertension is a huge barrier which we have to cross if we want to achieve those feet.As there is limited and unclear data of its co relation with Body Mass Index, I chose this as my research topic and thus could contribute to the knowledge pool.

STATEMENT OF THE PROBLEM

An explorative study to find out the association between Body Mass Index andHypertension in a view to prepare Information Booklet on prevention of complicationsamong Hypertensive patients in selected Hospitals of Chhattisgarh

OBJECTIVES OF THE STUDY

The objectives of the study are

☐ To find out the association between Body Mass Index and Hypertension amongHypertensive patients.

☐ To find out the association between selected socio demographic, clinicalvariables and Hypertension among hypertensive patients

☐ To prepare an Information Booklet on prevention of complications ofHypertension.

HYPOTHESES

H_1 : There will be a significant association between Body Mass Index andHypertension.

H_2: There will be significant association between Socio demographic, clinicalvariables and Hypertension among hypertensive patients

ASSUMPTION

The study assumes that

• Fluctuations from the normal Body Mass Index will affect the normal blood pressure as it increase the fat deposition in blood vessels and thus narrows them.

• Hypertensive patients are in higher risk of complications as their natural blood pressure controlling mechanism is hindered and obesity fosters increase of blood pressure.

• Demographic variables and clinical variable have an impact in blood pressure fluctuations. Certain disease conditions and medications cause rise in blood pressure. Similarly food intake, eating habits also influence the blood pressure.

RESEARCH METHODOLOGY

RESEARCH APPROACH

The quantitative research approach was considered as most appropriate forfinding the relation between Body Mass Index and Hypertension.

RESEARCH DESIGN

The researcher used exploratory descriptive research design suitable for finding the relation between Body Mass Index and Hypertension.

VARIABLES

Variables are the qualities, properties, or characteristics of persons, things orsituations that change or vary and are manipulated or measured in research.

Dependent variable

In this study, the dependent variable is Hypertension.

Independent variable

In this study the independent variable is Body Mass Index.

Extraneous variable

In this study, it refers to age, education, sex and occupation, area of residence,family monthly income, type of family, food and medications.

SETTING

The setting was chosen on the basis of the availability of samples and the cooperation extended by the management.

POPULATION

In this study, the population consists of hypertensive patients getting treatment inhospitals.

Target population

In this study, the target population comprises of hypertensive patients getting treatment in hospitals

Accessible population

The accessible population of the present study is hypertensive patients getting treatment in hospital.

SAMPLE

The sample consists of outpatient adults in hospital at Chhattisgarh.

SAMPLE SIZE

The sample size for the present study comprises of 100 adults who satisfied the inclusion criteria.

SAMPLING TECHNIQUE

The participants of the study were selected by non probability purposive samplingtechnique. The researcher selected the participants based on the inclusion criteria.

SAMPLING CRITERIA

Inclusion Criteria

The study included hypertensive patients who

- fall in the age group of 25-50 years.
- are willing to participate in the study.
- are in treatment under outpatient department.

Exclusion Criteria

The study excluded adults who

- are too sick to participate
- are not willing.

ORGANIZATION OF THE FINDINGS

The data collected were edited, tabulated, analyzed, interpreted and findingsobtained were presented in the form of tables and diagrams represented under the following sections.

Section I

- Data pertaining to frequency and percentage distribution of demographic variableamong hypertensive patients.
- Data pertaining to frequency and percentage distribution of clinical variableamong hypertensive patients
- Data pertaining to frequency and percentage distribution of biophysiologicalvariable among hypertensive patients
- Data pertaining to frequency and percentage distribution of body mass indexamong hypertensive patients

Section II

☐ Data pertaining to association of Body Mass Index and blood pressure amongpatients with hypertension

☐ Data pertaining to association of socio demographic variables and Hypertension

☐ Data pertaining to association of clinical variables and Hypertension

SECTION I

Table 1: Data pertaining to frequency and percentage distribution of socio demographic variables of Hypertensive patients   n=100

Sl.No	Socio demographic variables	f	%
1.	**Age** 20-30years 31-40years 41-50 years	10 30 60	10 30 60
2.	**Gender** Male Female	80 20	80 20
3.	**Education** Illiterate primary secondary high school Higher secondary College	05 20 25 20 20 10	05 20 25 20 20 10
4.	**Occupation** Daily wage Regular monthly income Unemployed	70 20 10	70 20 10
5.	**Residing place** Urban Rural	70 30	70 30
6.	**Family income per month in rupees**. a) Below 2000 b) 2000-5000 c) 5001-8000 d)Above 8000	10 20 45 25	10 20 45 25
7.	**Type of family** Nuclear Joint	60 40	60 40

With regard to age, majority of 60(60%) were found in the age group of 41- 50 years, 30(30%) were in the age group of 31-40 years, 10(10%) were in the age group of 20-30 years. With regard to sex, majority of 80 (80%) were males and least of 20 (20%) were females.

With regard to educational level, majority of 25(25%) obtained secondary level education, 20(20%) in each obtained primary level education, high school education, higher secondary level education, 10(10%) completed graduation and 5(5%) were illiterate.

With regard to occupational status, majority of 70(70%) were daily wage workers, 20(20%) were regular monthly income workers and 10(10%) were unemployed.

With regard to area of residence majority of 70(70%) belonged to urban background and remaining 30(30%) were from rural area .

With regard to monthly income majority of 45(45%) were getting monthly income of Rs.5001-8000, 25(25%) were getting more than Rs 8000 per month, 20(20%) were getting of Rs 2000-5000 and least of 10 (10%) are getting less than Rs. 2000 per month.

 And finally when it comes to type of family, 60(60%) belongs to nuclear familyand 40(40%) belongs to joint family.

Table 2: Data pertaining to frequency and percentage distribution of clinicalvariables of hypertensive patients.

n=100

S. NO	CLINICAL VARIABLES	f	%
1	**DIET** **Type of food** vegetarian non vegetarian	 30 70	 30 70
2	**Frequency of meal** 2 times/day 3times/day 4times/day more than 4 times	 20 50 20 10	 20 50 20 10
3	**Common cooking method** a) fryingb)baking c) stewingd)boiling e) steaming	25 10 10 30 25	25 10 10 30 25

1	**CO MORBID ILLNESS** **Cardiovascular diseases** yes no	20 80	20 80
2	**Kidney disease** yes no	27 73	27 73
3	**Diabetes mellitus** yes no	35 65	35 65
4	**Other problems** yes no	15 85	15 85

The frequency and percentage distribution of clinical variables of patients with hypertension. It shows that 70(70 %) of the sample population were non vegetarian, while 30 (30%) were vegetarian. With regard to the frequency of meal, a majority of 50(50%) took food 3 times a day, 20(20%) took food 2 times a day, another 20(20%) took food 4 times/day and a least percentage of 10(10%) took more than 4 times a day. The most common method of cooking was boiling 30(30%). Frying and steaming ranges second with 25(25%) each, the least common methods were baking and stewing with 10(10%) each. With regard to co morbid illness, 80(80%) were free of cardiovascular disease, while 20(20%) had cardiovascular problems, 27(27%) had kidney problems while, 73(73 %) are free of kidney problems. In case of diabetes, 35(35 %) were diabetic and 65(65%) were non diabetic.85 (85%) did not have any other problems, while 15(15%) did have other problems.

Table 3: Data pertaining to frequency and percentage distribution of Bio physiological variables of patients with hypertension

n=100

S. No	Bio physiological Variables	f	%
1	**Height** a) <140cm b) 140-159cm c) 160-180cm d)>180cm	00 24 70 06	00 24 70 06
2	**Weight** a) <50kg b) 50-70kg c) 71-90kgd)>90kg	00 82 14 04	00 82 14 04

3	**Abdominal girth**		
	a) <80cm	04	04
	b) 80-99cm	20	20
	c) 100-120cm	50	50
	d)>120cm	26	26
4	**Blood pressure in mm/hgSystolic**		
	a) <90		
	b) 90-120	00	00
	c) 121-140d)141-180e)180<	22	22
		36	36
		42	42
		00	00
5	**Diastolic**		
	a) <60	00	00
	b) 60-80	28	28
	c) 81-100	65	65
	d)101-120	07	07
	e)120<	00	00

The frequency and percentage distribution of Biophysiological variables of patients with hypertension. With regard to height, maximum of 70(70%) belonged to the group between 160 and180 cm height, 24(24%) belonged to the category of 140- 159 cm height and 6(6%) had more than 180cms height. Regarding weight, 82(82%) belonged to 50-70 kg weight, 14(14%) had 71- 90kg weight. 4(4%) had more than 90 kg weight. None of them belongs to the category of below 50 kg height.Regarding abdominal girth, majority 50(50%) had 100-120cms of abdominal girth, 26(26%) had more than 120cms, 20(20%) were between 80-99cms, 4 (4%) had less than 80cms. Regarding Systolic blood pressure, 42(42%) have their Blood pressure between 141-180 mm/Hg.36 (36%) had 121-140 mm/Hg and 22(22%) had 90-120. Regarding Diastolic blood pressure, majority of 65(65%) had Blood pressure between 81-100 mm/Hg, 22(22%) had 60-80mm/Hg and a mere 7(7%) had 101-120mm/Hg.

Table 4: Data pertaining to frequency and percentage distribution of Body MassIndex of patients with hypertension

n=100

S. NO	BODY MASS INDEX	f	%
1	Body Mass Index in kg/m^2 Under weight(<18 kg/m^2) Normal weight(18-24 kg/m^2) Over weight(>24 kg/m^2)	06 52 42	06 52 42

SECTION II

Testing of hypothesis

H$_1$: There will be a significant association between Body Mass Index andHypertension

Table 5: Data pertaining to association of Body Mass Index and Systolic bloodpressure among patients with hypertension

n=100

dy Mass Index	<90mm/Hg	90-120 mm/Hg	121-140 mm/Hg	141-180 mm/Hg	>180 mm/Hg	X^2	P value
Over weight	0	0	4	38	0		
Normalweight	0	16	32	4	0	88.001	f-40 ***
Underweight	0	6	0	0	0		

*** P< 0.0001

The frequency distribution of hypertensive patients with regard to the Body Mass index and systolic Blood pressure. We can deduce that 42(42%) of the samples were overweight, 52(52%) were of normal weight and 6 (6 %) were underweight. Majority of the hypertensive patients 42(42%) had 141-180 mm/Hg systolic Blood pressure, 36(36%) had Blood pressure of 121-140 mm/Hg and a mere 22(22%) had 90-120 mm/Hg Blood Pressure. The chi square value is 88.01, P value is 0 which is significant at level of P<.0001.

Table 6: Data pertaining to association of Body Mass Index and Diastolic bloodpressure among patients with hypertension

n=100

Body Mass Index	<60mm/Hg	60-80 mm/Hg	81-100 mm/Hg	101-120 mm/Hg	>120 mm/Hg	x^2	P value
Over weight	0	2	34	6	0	32.537	df-4 .00000149 ***
Normal weight	0	20	31	1	0		
Under weight	0	6	0	0	0		

*** P< 0.0001

The frequency distribution of hypertensive patients with regard to the Body Mass index and diastolic Blood pressure. We can deduce that 42(42%) of the samples were overweight, 52(52%) were of normal weight and 6 (6 %) were underweight. Majority of the hypertensive patients 65(65%) had 81-100 mm/Hg diastolic Blood pressure, 28(28%) had Blood pressure of 60-80mm/Hg and a mere 7(7%) had 101-120 mm/Hg Blood Pressure. The chi square value is 32.53, P value is .00000149 which issignificant at level of P<.0001.

Hence it shows the significant association between blood Pressure and Body Mass Index. So the Hypothesis H_1 was accepted.

Table 7: Data pertaining to association of Socio demographic variables and Systolicblood pressure among patients with hypertension.

Testing of Hypothesis

H₂ : There will be significant association between selected demographic variables,Clinical variables and Hypertension

n=100

S.No	Socio demographic variables	<90 mm/Hg	90-120 mm/Hg	121-140 mm/Hg	141-180 mm/Hg	180< mm/Hg	X^2	P value
1.	**Age** a)20-30years b)31-40years c) 41-50 years	0 0 0	0 6 16	0 14 22	. 10 22	0 0 0	16.35	df-4 0.0026 ***
2.	**Gender** a)Male b)Female	0 0	20 2	24 12	36 6	0 0	6.49	df -2 0.04 *
3.	**Education** a)Illiterate b)primary c)secondary d)high school Higher sec College	0 0 0 0 0 0	2 4 7 2 5 2	2 8 8 9 5 4	1 8 10 9 10 4	0 0 0 0 0 0	4.49	df-10 0.89
4.	**Occupation** a)Daily wage b)Regular monthly income c) Unemployed	0 0 0	18 4 0	30 6 0	22 10 10	0 0 0	17.57	df-4 .001 ***
5.	**ding place** a)Urban b)Rural	0 0	16 6	25 11	29 13	0 0	.101	df-2 .95
6.	**Family income per month in rupees**. a) Below 2000 b) 2000-5000 c) 5001-8000 d) Above 8000	0 0 0 0	2 6 8 6	4 7 15 10	4 7 22 9	0 0 0 0	2.22	df-6 .897

7.	Type of family Nuclear Joint	0 0	12 10	20 16	28 14	0 0	1.34	df-2 .51

*P< 0.05, ***P< 0.001

The frequency and percentage distribution of socio demographic variables of patients with Hypertension including age, sex, educational level, and occupational status, area of residence, monthly income and type of family. With regard toage, majority of 60(60%) were found in the age group of 41-50 years, 30(30%) were in the age group of 31-40 years, 10(10%) were in the age group of 20-30 years. With regard to sex, majority of 80 (80%) were males and least of 20 (20%) were females.

With regard to educational level, majority of 25(25%) obtained Secondary level education, 20(20%) in each obtained primary level education, high school education, higher secondary level education, 10(10%) completed graduation and 5(5%) were illiterate. With regard to occupational status, majority of 70(70%) were daily wage workers, 20(20%) were regular monthly income workers and 10(10%) were unemployed.With regard to area of residence majority of 70(70%) belonged to urban background and remaining 30(30%) were from rural area .With regard to monthly income majority of 45(45%) were getting monthly income of Rs.5001-8000, 25(25%) were getting more than Rs 8000 per month, 20(20%) were getting of Rs 2000-5000 and least of 10 (10%) are getting less than Rs. 2000 per month. And finally when it comes to type of family, 60(60%) belongs to nuclear family and 40(40%) belongs to joint family.

The above tables show that the association between socio demographic variables and Systolic Blood pressure among Hypertensive patients. There was association between Age, sex and occupational status with hypertension. Whereas there was no association found for educational level, residing place, family income and type of familywith Hypertension.

Table 8: Data pertaining to association of Socio demographic variables and Diastolicblood pressure among patients with hypertension

n=100

S L. N O	Socio demographic variables	<60m m/Hg	60-80 mm/Hg	81-100 mm/Hg	101-120 mm/Hg	12 0< mm /Hg	X^2	P value
1.	**Age** a)20-30yearsb)31-40years c) 41-50 years	0 0 0	6 6 16	2 22 41	2 2 3	0 0 0	10.68	df=4 0.03 *
2.	**Gender** a)Male b)Female	0 0	24 4	53 12	3 4	0 0	6.07	df=2 0.035 *
3.	**Education** a)Illiterate b)primary c)secondary high school Higher secondary College	0 0 0 0 0 0	1 5 8 6 6 2	3 14 16 13 13 6	1 1 1 1 1 2	0 0 0 0 0 0	5.03	df=10 0.89
4.	**Occupation** Daily wage b) Regular monthly income Unemployed	0 0 0	24 4 0	43 12 10	3 4 0	0 0 0	12.60	df=4 0.013 **
5.	**ding place**a)Urban b)Rural	0 0	21 7	45 20	4 3	0 0	.903	df=2 .64
6.	**Family income per month in rupees**. a)Below 2000b)2000-5000 c)5001-8000 d)Above 8000	0 0 0 0	1 6 15 6	8 13 26 18	1 1 4 1	0 0 0 0	3.47	df=60.75
7.	**Type of family** Nuclear Joint	0 0	18 10	38 27	4 3	0 0	.302	df=20.86

*P<0.05, ** P<0.01

The frequency and percentage distribution of socio demographic variables of patients with Hypertension including Age, Sex, Educational level, and occupational status, area of residence, monthly income and Type of family. With regardto age, majority of 60(60%) were found in the age group of 41-50 years, 30(30%) were inthe age group of 31-40 years, 10(10%) were in the age group of 20-30 years. With regard to sex, majority of 80 (80%) were males and least of 20 (20%) were females.

With regard to educational level, majority of 25(25%) obtained Secondary level education, 20(20%) in each obtained primary level education, high school education, higher secondary level education, 10(10%) completed graduation and 5(5%) were illiterate. With regard to occupational status, majority of 70(70%) were daily wage workers, 20(20%) were regular monthly income workers and 10(10%) were unemployed.With regard to area of residence majority of 70(70%) belonged to urban background and remaining 30(30%) were from rural area .With regard to monthly income majority of 45(45%) were getting monthly income of Rs.5001-8000, 25(25%) were getting more than Rs 8000 per month, 20(20%) were getting of Rs 2000-5000 and least of 10 (10%) are getting less than Rs. 2000 per month. And finally when it comes to type of family, 60(60%) belongs to nuclear family and 40(40%) belongs to joint family.

The above tables show that the association between socio demographic variables andDiastolic Blood pressure among Hypertensive patients. There was association betweenAge, sex and occupational status with hypertension. Whereas no association was foundfor educational level, residing place, family income and type of family with Hypertension. Hence the Hypothesis H_2 was partially accepted.

Table 9: Data pertaining to association of Clinical variables and Systolic bloodpressure among patients with hypertension   **n=100**

S. NO	CLINICAL VARIABLES	<90 mm /Hg	90-120 mm /Hg	121-140 mm /Hg	141-180 mm /Hg	180 < mm /Hg	X^2	P value
1	**DIET** **Type of food** vegetarian non vegetarian	 0 0	 15 7	 10 26	 5 37	 0 0	21.9 06	df=2 0.000 1 ***
2	**Frequency of meal** 2 times/day 3times/day 4times/day d) more than 4 times	 0 0 0 0	 10 5 4 3	 7 20 7 2	 3 25 9 5	 0 0 0 0	16.1	df=6 0.01 *
3	**Common cooking method** a) fryingb)baking c) stewingd)boiling e) steamig	 0 0 0 0 0	 5 2 2 8 5	 7 2 2 18 7	 13 4 4 4 13	 0 0 0 0 0	13.9 2	df=8 0.083

1	O MORBIDILLNESS Cardiovascular diseases yes no	0 0	5 17	6 30	9 33	0 0	.406	df=2 0.816
2	Kidney disease yes no	0 0	8 14	9 27	10 32	0 0	1.26	df=2 0.53
3	Diabetes mellitus yes no	0 0	10 0	10 0	15 0	0 0	1.89	df=2 0.388
4	Other problems yes no	0 0	5 17	5 31	5 37	0 0	1.38	df=2 0.501

*P<0.05, ** P<0.01

The frequency and percentage distribution of clinical variables of patients with hypertension. It shows that 70(70 %) of the sample population were non vegetarian while 30 (30%) were vegetarian. With regard to the frequency of meal, a majority of 50(50%) took food 3 times a day, 20(20%) took food 2 times a day, another 20(20%) took food 4 times/day and a least percentage of 10(10%) took more than 4 times a day. The most common method of cooking was boiling 30(30%). Frying and steaming ranges second with 25(25%) each, the least common methods were baking and stewing with 10(10%) each. Regarding co morbid illness, 80(80%) were free of cardiovascular disease while 20(20%) had cardiovascular problems 27(27%) had kidney problems while 73(73 %) are free of kidney problems. In case of diabetes, 35(35 %) were diabetic and 65(65%) were non diabetic.85 (85%) did not have any other problems while 15(15%) did have other problems.

The above tables show that the association between Clinical variables and Systolic Blood pressure among Hypertensive patients. According to this table there was association between Type of food and Frequency of meal with hypertension. Whereas no association was found for Co morbid illness, Common cookingmethods with Hypertension.

Table 10: Data pertaining to association of Socio demographic variables andDiastolic blood pressure among patients with hypertension

n=100

S. NO	CLINICAL VARIABLES	<60 mm/Hg	60-80 mm/Hg	81-100 mm/Hg	101-120 mm/Hg	120< mm/Hg	X^2	P value
1	**DIET** **Type of food** vegetarian non vegetarian	 0 0	 3 25	 22 43	 5 2	 0 0	11.38	df=2 0.003 **
2	**Frequency of meal** 2 times/day 3times/day 4times/day more than 4 times	 0 0 0 0	 5 16 5 2	 10 34 15 6	 5 0 0 2	 0 0 0 0	18.32	df=6 0.005 **
3	**Common cooking method** a) fryingb)baking c) stewingd)boiling e) steaming	0 0 0 0 0	5 2 2 14 5	19 2 2 18 7	1 1 1 3 1	0 0 0 0 0	9.79	df=8 0.279
1	**O MORBIDILLNESS** **Cardiovascular diseases** yes no	 0 0	 5 23	 14 51	 1 6	 0 0	.319	df=2 0.852
2	**Kidney disease** yes no	0 0	8 20	18 47	1 6	0 0	.625	df=2 0.731

3	Diabetes mellitus	0	8	25	2	0		df=2
	yes	0	20	40	5	0	.978	0.613
	no							
4	Other problems	0	4	10	1	0		df=2
	yes	0	24	55	6	0	.022	0.989
	no							

*P<0.05, ** P<0.01

CONCLUSION

The following conclusions were drawn from the findings of the study. The main conclusion of the present study is that there is significant association between Body Mass Index and Hypertension. Socio demographic variables have an association with hypertension. Selected patients became familiar about Hypertension and satisfied after giving Information booklet.

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