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STUDY ON THE DEVELOPMENT OF HIGH BLOOD PRESSURE AMONG THE POPULATION OF BHAGALPUR

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ABSTRACT

Hypertension or high blood pressure development is one of the most frequent health ailments of modern day society. The modern day population is under threat of developing high blood pressure due to improper life style and dietary behaviour. In the present study the urban population of Bhagalpur including 250 males and 250 females were investigated for the development of hypertension due to dietary impact. It was revealed that there is a direct relation between the dietary habit and development of hypertension.

Key words: Hypertension, Society, Diet, Bhagalpur.

Introduction:

Bhagalpur is one of the oldest cities of Bihar and has a large population of different religions and castes. According to the 2011 censes Bhagalpur urban area has a population of 6,02,532 out of which 3,20,277 are males and 2,82,255 are females. In the last 5 years and so the Bhagalpur has transformed intro semi metro city and included several malls, restaurants, fast food centres, and road side food items.

The new generation has a high desire for these foods and they want to eat fast food items more often. The traditional fast foods includes Samosa, Bread Pakodas, Gujhiya, and Other fried items, while, modern fast foods includes, Pizza, Burger, Patties, Pasta, Fried/Roasted chicken, Chowmin, Momos, Maggie, Dhosa etc. that contain high amount of fatty substances that may have a connection with the development of hypertension. In house hold food making the traditionally used oil i.e. mustard oil, sunflower oil are in deceasing trend, the use of refined oil is gaining importance with respect to other traditional oils. The people as general like more spicy and oily food and the trend is obvious in different age groups of surveyed population.

In the present study the urban population of Bhagalpur has been estimated for finding a relationship among the individuals and their dietary habit. Bhagalpur urban area is divided into 25 wards and from each ward 10 males and 10 females were randomly selected for the study. The blood pressure was measured by the standard sphygmomanometer twice a day in different age groups. And the mean value was used for data preparation, a total of 250 males and 250 females were investigated for the development of hypertension due to their dietary habits.

Material and Methods:

A total of 250 males and 250 females from 25 different municipal ward were investigated for their relationship of developing high blood pressure with respect to their dietary pattern.

The three parameters such as Food Habit, Meal

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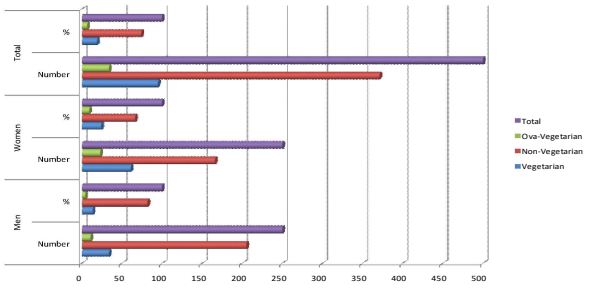
pattern, Salt intake and type of Oil or Fat consumed were taken into consideration for the evaluation of hypertension development in response to the dietary habits. The

Result and Discussion:

Dietary habits: The pattern of Vegetarian and non-vegetarian food habit has been examined within the 500 sample population of the urban Bhagalpur.

Table -1.0 shows the dietary habit of selected

Food Habit	Men		Women		Total	
	Number	%	Number	%	Number	%
Vegetarian	34	13.6	61	24.4	95	19.0
Non-Vegetarian	205	82.0	166	66.4	371	74.2
Ova-Vegetarian	11	4.4	23	9.2	34	6.8
Total	250	100	250	100	500	100

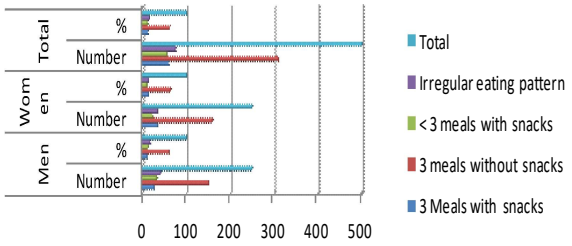


The study found that both red and processed meat intakes were associated with modest increases in total mortality, cancer mortality, and CVD mortality (Marsh *et al.,* 2012). From the above Table-1.0, it was clear that the present study results were on par with the above statements. Majority of the selected urban hypertensives (82 per cent men and 66.4 per cent women) followed non vegetarian diet where as about 19 per cent followed vegetarian diet. Only 4.4 men and 9.2 per cent were found to be ova vegetarians in case of men of women respectively. The dietary habit was found to be similar in selected areas of Bhagalpur.

Meal pattern: The population was surveyed for the meal pattern that is number of times meal taken with or without snacks among the 250 males and 205 females of different municipal wards of Bhagalpur.

Table -2.0 displays the meal pattern of the selected hypertensives.

Meal pattern	Men		Women		Total	
	Number	%	Number	%	Number	%
3 Meals with snacks	26	10.4	34	13.6	60	12.0
3 meals without snacks	151	60.4	159	63.6	310	62.0
<3 meals with snacks	32	12.8	23	9.2	55	11.0
Irregular eating pattern	41	16.4	34	13.6	75	15.0
Total	250	100	250	100	500	100



Meal pattern was the clear marker of diet quality and nutrient intake. The Table-2.0 stated that more than 60 per cent of the selected subjects were having three meals without snacks every day. The percentage was, 60.4 per cent and 63.6 per cent in urban men and women respectively. The present study agreed the results stated by Omidvar and Begum (2014) which observed that the frequency of regular consumption of three meals was high among south Indians. Three meals with snacks intake were found to be 10.4 per cent in men and 13.6 percent in women respectively. Less than 3 meals with snacks consumption was noticed in 12.8 per cent of urban men and 9.2 per cent in urban women. It might be due to their nature of work. The results were on par with the study in four cities of India which stated that more than a quarter (27 per cent) people skip breakfast, 9 per cent skip lunch and as little as 5 per cent claim to skip dinner (Malathi and Kamath, 2013). Irregular eating pattern was noticed more among women (16 per cent) followed by men (eight per cent) . This result was similar to the result given by Tharani and Amirthaveni (2014) which stated that about 8.1 and 13 per cent of male and female respectively had irregular eat

ing pattern due to heavy work load and were not time conscious with regard to the food intake.

Salt intake: The amount of salt intake is also considered one of the major reason for the development of hypertension. In the present study, salt intake among the individuals of Bhagalpur urban area was considered for establishing relationship between the development of hypertension and dietary habit.

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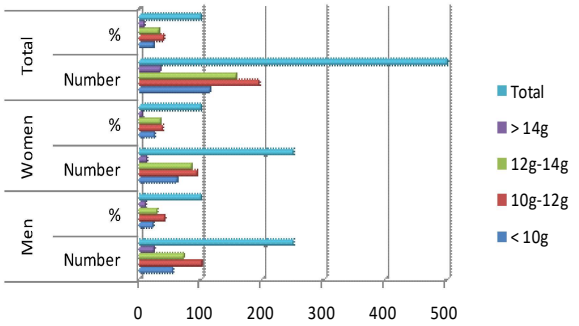
Table -3.0 Salt intake pattern

Salt Intake/Day	Men		Women		Total	
	Number	%	Number	%	Number	%
<10g	54	21.6	61	24.4	115	23.0
10g-12g	101	40.4	93	37.2	194	38.8
12g-14g	72	28.8	85	34.0	157	31.4
>14g	23	9.2	11	4.4	34	6.8
Total	250	100	250	100	500	100



World Wide, excess dietary salt intake was responsible for 17 per cent - 30 per cent of hypertension and substantially increased the risk of blood pressure related CVD events in normotensives. Most Indians consumed between 10 to 15 g a day, putting them at severe risk of hypertension (WHO, 2013).

Hence, salt intake pattern of selected hypertensives was assessed by 24 hrs dietary recall method. Cogswell et al., (2013) stated that 24-hrs dietary recalls had promise for monitoring temporal trends in average sodium intake. From the above table and Figure - 4.10 it was clear that, nearly 40 per cent of the selected hypertensives consumed 10 g to 12 g of salt per day. It might be due to the reason given by Dhemla and Varma (2015). They opined that the urban Indian's routine diet, pickled with takeaways from fast food joints and instant foods that were ready in a jiffy at the end of a long working day, could worsen the present epidemic of hypertension due to its high proportion of salt.

The present study result was similar to the population studies given by Asian scientist (2013) which observed nine to twelve gram salt intake per day among Indians. The intake was reported to be higher in urban settings compared to rural settings. But the present study recorded similar intake in both rural and urban with respect to salt intake.

About 23 per cent of urban consumed <10 g of salt /day. This result was on par with a study quoted by Varma (2013) which stated that the intake of salt by Indians was nearly twice the amount recommended by the World Health Organisation (WHO). Indians consumed about 3.7 grams of sodium, corresponding to about 9.3 g of salt per day. It was alarming to note about 12-14 g of salt consumption 34 per cent of men and 28 per cent of women in urban. In this study, the greatest per cent of the selected hypertensives were non vegetarians, therefore their regular meat intake might be one of the reasons for high consumption of salt. The salt consumption amount below 10 g/ day was observed among less than one quarter urban where as the rest three fourth consumed more than twice the amount of salt/day than WHO

recommendation (5 g/day).This might be one of the primary reasons for increasing prevalence of hypertension in both rural and urban areas.

Type of oil and fat used: There is a dramatic shift in recent time about the consumption of type of cocking oil. The traditional use of oil has changed as more options are now available and people can use these as per their convenience and taste.

Tabel – 4.0 TYPE OF OIL AND FAT USED

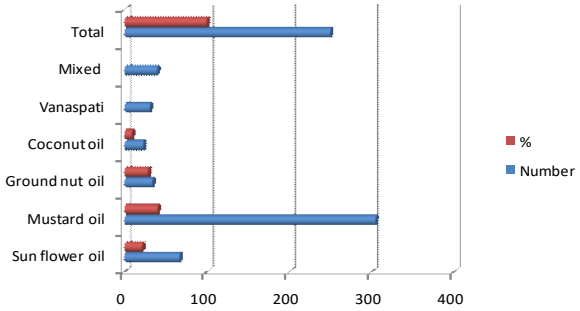
Particulars	Number	%
Sun flower oil	67	13.4
Mustard oil	305	61.0
Ground nut oil	34	6.8
Coconut oil	23	4.6
Vanaspati	31	6.2
Mixed	40	8.0
Total	500	100

Sharma (2012) stated that excessive intake of fats, especially saturated fats, was known to increase the risk of cardiovascular diseases. Health experts attributed the sharp rise in heart diseases in India due to excessive oil intake in various forms. According to Table -4.0 and Figure -4.0 oil namely sun flower oil, mustard oil, ground nut oil, coconut oil, vanaspati and mixed pattern oil were used regularly in the diet by the selected hypertensive men and women.

In the sample population more than 61 per cent of selected hypertensive men and women used mustard oil regularly. It might be due to the traditional use over other edible oil and its easy availability in state public distribution system. Around 6.2 per cent of hypertensive men and women vanaspati ghee regularly.

As per the present study the greatest part of the selected urban hypertensives belonged to middle income group and clearly showed that edible oil consumption was closely linked to economic status. Table – 4.0 inferred that saturated fat intake was found to be more common in both rural and urban areas although it differed in type.

Figure - 4.0 Type of oil and fat used



Blood Pressure among Different Groups:

The blood pressure of individuals were examined twice a day during the course of study with the help of standard sphygmomanometer and stethoscope.

Groups	B.P. (Tested) in mm Hg
Regular Meal	78- 82 Systolic 118-129 Dystolic
Regular Meal with Snacks	80-87 Systolic 122-135 Dystolic
Vegetarian	78-85 Systolic 118-130 Dystolic
Non-Vegetarian	79-89 Systolic 122-145 Dystolic
Saturated Oil/Fat consumers	80-97 Systolic 120-149 Dystolic
Unsaturated Oil/Fat Consumers	80-95 Systolic 119-145 Dystolic

Conclusion:

In the present study, it was revealed that there was a clearcut connection between the development of high blood pressure and dietary habit among the individuals under study. The individuals either men or women having irregular meal pattern along with snacks, loving more non-vegetarian food, enjoy more salts and use more fats are more prone to develop high blood pressure.

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