

## Prevalence of Hypertension among doctors.

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### Abstract

**Introduction:** Hypertension has always been a subject worthy of our attention. Its prevalence among the normal population has normally acquired massive attention. The number of patients with hypertension has risen from about 118 million in 2000 to about 214 million in 2025. The study of hypertension among the doctors has never been able to gain significant Importance until now.

**Objective:** To find out the prevalence of hypertension among the doctors of BVH Bahawalpur and find out any possible variation of risk factors when compared with general population.

### Material and method:

**Study Design:** It was a cross sectional study

**Setting:** Study was carried out in the month of May from doctors working in Bahawal Victoria Hospital of age group 35-65 years.

**Methods:** First of all consent was taken from each individual which was followed by recording of data as follows: age, gender, marital status, specialty, weight, height, BMI, family

history, drug history, and any associated diseases.

**Duration:** The total duration of the study was 20 days.

**Study Population:** The study was conducted on doctors of Bahawal Victoria Hospital of age above 35 years.

**Sampling Technique:** It was simple random sampling.

**Sample Size:** A sample of 100 doctors was selected from Bahawal Victoria Hospital.

**Ethical Issues:** inform consent was taken from all participants.

**Results:** Out of 100 doctors included in the research, 40 claimed to be hypertensive. Amongst other prominent results were that 50.8% of hypertensive had a positive family history of hypertension, and that only 37.3% of males studied were hypertensive whereas 45.5 % of females studied turned out to be hypertensive.

**Conclusion:** It was concluded that the prevalence of hypertension among the doctors is no different than the general population. Furthermore, the important risk factors include smoking, raised BMI and lack of exercise.

**Keywords:** Hypertension, prevalence, doctors, BMI, exercise

### **Introduction**

Hypertension is one of the diseases which has seen an exceptional rise in its incidence during the recent past. Hypertension is the increase in systolic blood pressure having a cut off value of about 140 mm Hg systolic and 90 mm Hg of diastolic. According to the estimates there were about 118 million patients suffering from hypertension which will increase to about 214 million in 2025.<sup>2</sup> Such a massive rise is attributed to low socioeconomic status and a huge bulk of illiterate people whose numbers are enormous in subcontinent.

Hypertension remains asymptomatic for some time until a number of complications namely, coronary heart disease, stroke and renal failure develops. When the high blood pressure levels become chronic and the complications start to reveal, the ratio of mortalities rises up. Raised blood pressure is estimated to cause

7.5 million deaths, about 12.8% of all deaths. This accounts for 57 million disability adjusted life years (DALYS) or 3.7% of total DALYS.<sup>3</sup> Worse of all if we divert our attention to Pakistan, the 1990 to 1994 National Health Survey of Pakistan showed that about 70% to 85% of Pakistani hypertensive patients were unaware of their disease.<sup>4</sup>

There is no denying that there are so many people in Pakistan who are not aware of their condition. But this must not go without saying that even if the people are aware of the condition, they are not being provided with enough information on how to prevent this situation before it accelerates. Lack of this knowledge has led to this disease being common among the health professional themselves especially the doctors.

Since the undergraduate trainees in medical profession are considered to be the mainstay of the future citadel of medicine and surgery, a study was conducted to find out the prevalence of hypertension among the doctors. Aim was to look into the factors that led to disease being prevalent among the medical society so that it could be prevented from the grass root level.

### **Literature Review**

Hypertension is a state of great physiologic stress. It is designated as



a mean systolic blood pressure greater than 140mmHg and mean diastolic pressure greater than 90mmHg. Study objectives are to quantify the prevalence of hypertension in doctors to identify factors that influence blood pressure.

From detailed study of researches, we have collected this information:

In year 2012, a study was conducted in an academic emergency counting hospitals from Romanian Public Health Network. Doctors from General Surgery, Gynecology, Orthopedics, Urology, ENT, Ophthalmology, and ICU participated in the study. Overall prevalence of Hypertension in study group was 30% in mean age group of 35 - 50 years. The prevalence of risk factors was found as family history (26.1%), BMI (85.5% of hypertension cases had BMI greater than or equal to 25 kg per meter square and 47.8% had BMI greater than or equal to 30kg per meter square), gender (63.7% females and 36.7% in males), age factor (24.4% among 35 - 44 years, 37.7% among 45 - 54 years, 30% among greater than 55 years), workability (61.1% excellent workability, 78.9% among mixed physical and mental demand, 44.4% among high level of emotional exhaustion). This research suggests that hypertension is

associated with overweight, family history and gender.<sup>5</sup>

In year 2015, a study was conducted in Karnataka. It was conducted to find out prevalence of hypertension I doctors, above age 30. 162 doctors participated in research. It showed that prevalence of hypertension was 14.82% and 60.49% were pre-hypertensive. 48.15% of doctors showed greater than 25 kg per meter square BMI and 35.89% were smokers and 77.78% showed a positive family history of hypertension.<sup>2</sup>

In year 2012, a study was conducted to find prevalence of hypertension among doctors of Nigeria. 324 doctors participated. Age ranges from 35 - 60 years with mean age of 41.1 years. 20.1 percent were hypertensive. Most patients were of age 40 - 49 years. 56.5% of subjects were physically active, 25.6% of subjects had family history of hypertension. 0.6% of subjects had diabetes. 9.95 of subjects were obese. Male to female ratio of hypertension is 2:1. In this study, only subject who was daily smoker was also hypertensive. So, the healthy lifestyle and physical activity protects against hypertension.<sup>6</sup>

In year 2010, a study was conducted among doctors in tertiary hospitals in Riyadh, Saudi Arabia. Doctors of

Medicine, Surgery, Gynecology, and Pediatrics participated. Total number of subjects were 672. 66.6% females of mean age 36.2 plus minus 13.9 years. Prevalence of hypertension was 28%. Stress and lack of formal exercise were prevalent risk factors of hypertension present in 44.1% and 36.1% of patients respectively. Obesity was present in 19.4%. many participants were not aware of recently recommended target value of blood pressure, 22.3% were irregular in their follow up, 12.2% were not adherent to treatment, 8.3% smoked, BMI greater than or equal to 30 in 19.4%. Inactivity in 11.1%, diabetes 23%, stress at work 44%. No formal exercise in 36.1%. This research suggests that hypertension is associated with overweight, stress at work, physical inactivity and family history.<sup>7</sup>

In year 2014, a research was conducted among doctors at Taibah College of Medicine, Saudi Arabia. 50 subjects participated. Prevalence of hypertension was 26%. All participants were male. Unexpectedly, 18% were nonsmokers, 6% were ex-smokers, and only 1 was smoker. 77% had family history of hypertension. So this research shows overweight and family history are strong contenders of hypertension.<sup>8</sup>

## Objectives

To find out the prevalence of hypertension among the doctors of BVH Bahawalpur and find out any possible variation of risk factors when compared with general population.

### Methodology

**Setting:** Study was carried out in the month of May from doctors working in Bahawal Victoria Hospital of age group 35-65 years.

**Duration:** The total duration of the study was 20 days. 5 days were utilized in data collection and the rest of them were used for writing the whole extract, which included the tasks like introduction writing, abstract, analysis etc.

**Study prep:** The study instrument was structured, self-administrative questionnaire consisting of multiple choice questions encompassing major aspects of hypertension. The questionnaire was prepared by the students and was discussed with the supervisor. Finally, it was printed along with consent forms.

**Study design:** This was cross sectional analytical study which utilized qualitative research methods by use of a detailed questionnaire to collect data about prevalence of hypertension among doctors from 35-65 years. The study population

consisted of the doctors working in Bahawal Victoria hospital.

**Sample Size:** Sample unit was Bahawalpur Victoria Hospital. A sample of 100 doctors was selected from Bahawal Victoria Hospital. The selection of 100 sample size was to ensure that the results of the research are accurate enough to be applicable on the whole community.

**Sampling technique:** we used probability method and the type was simple random sampling. The questionnaire was in doctors ensuring anonymity of the doctors and taking an informed consent. They were asked to fill the questionnaires for which ample time was provided. The filled sheets were then collected and analyzed. Incompletely filled questionnaires were discarded.

#### **Inclusion criteria:**

The doctors should be between 35-65 years of age.

There was no differentiation of sex in the study i.e. both male and female doctors were included in the study.

Only the doctors working in the Bahawal Victoria Hospital were included in the study.

#### **Exclusion Criteria:**

The doctors who refused to participate in the study.

The doctors who were not falling in the specified age group, that is, 35-65 years of age.

The doctors who were not working in the Bahawal Victoria Hospital were also excluded.

**Data Collection:** An informed consent was sought before handing over the questionnaires. Data was collected using detailed, structured questionnaire. Questionnaire was pre-tested before administering to the respondents in order to improve the validity of results. Following data was collected using questionnaire: age group, gender, marital status, specialty, BMI, known hypertensive or not, duration of illness if hypertensive, job hours, nature of job, sleep hours, exercise and its type, type and the number of meals, smoking status, drugs used and family history of hypertension.

**Data Analysis:** The data was encoded and entered into SPSS version 21. Frequencies were run and percentages were calculated. The results were presented in the form of frequency tables. The interpretations were summarized in form of bar charts and pie charts for an easy comprehension of statistical data

### Results

The aim of this research was to compare the prevalence of hypertension in doctors of BVH in correlation with various factors that are known\thought to influence the incidence of the disease. In order to achieve this aim data from a total of 100 respondents was collected and analyzed, with the following results:

**Table 1.**

Variable s	Sub-Variable s	Cou nt	Percent age (%)
Age group	35-45 years	65	65.0
	45-55 years	23	23.0
	55 and above	12	12.0
Gender	Male	67	67.0
	Female	33	33.0
BMI	Overweig ht	49	49.0
	Normal	51	51.0
	Underwei ght	0	0.0
Average Sleep Hours	Less than 6 hours	30	30.0
	6 to 8 hours	67	67.0
	More than 8 hours	3	3.0
Exercise	Yes	52	52.0

at least once a week	No	48	48.0
Past\Curr ent Smoker	Yes	19	19.0
	No	81	81.0
Hyperten sive's	Yes	40	40.0
	No	60	60.0

Out of the 100 respondents, 65 were in the age group of 35 - 45 years, 23 were in the age group of 45 - 55 years, and only 12 were above 55 years of age.

67 of the total respondents were male whereas 33 were females.

Majority of the respondents identified themselves as belonging to the sub-specialty of Medicine (40 individuals), whereas 29 individuals each from surgery and academic participated in this research. Only 2 individuals from the administrative services participated in this research.

One of the most important factors under consideration in this study was the BMI of the respondents. Out of 100, about 49 were identified as overweight (further classification not included for simplification purposes) and 51 were normal. There was no reported case of an underweight respondent.



40 people identified themselves as a known hypertensive case whereas 60 people were negative for hypertension.

Of those who were afflicted with hypertension, 23 people had the disease for less than 5 years (about 57.5 percent of the respondents who were known hypertensive), whereas 10 had the disease from 5 - 10 years (about 25 percent) and only 7 had the disease for more than 10 years (constituting only 17.5 percent of individuals who had hypertension).

All the 100 respondents had a Government job (part of the requirement of the research) and out of the 100 respondents, 34 reported to be working extra hours at a private institute whereas 66 answered in a negative when asked if they had any other jobs apart from their private job.

Average number of sleep hours each night were also asked from the respondents, with almost 67 percent responded with a sleep duration of 6 - 8 hours whereas 30 percent had a sleep duration of less than 6 hours and only 3 percent were heavy sleepers with more than 8 hours of sleep each night.

Exercise is thought to play a key role in association with the onset\severity of hypertension and this variable was

studied in depth in this research. Out of 100 respondents, 52 reported that they exercise to some extent at least once a week whereas 48 respondents answered that they did not exercise even once a week. Amongst the people who did exercise, 37 respondents reported only doing light exercise (71.2 percent), whereas 14 respondents (26.9 percent) reported to be doing moderate exercise and only 1 respondent (1.9 percent of those who exercised) reported to be exercising heavily during the week.

Similarly, smoking has also been associated as a positive causative factor for

hypertension and so was studied during the course of this research. Out of 100

respondents, 19 were current\past smokers whereas 81 were absolute nonsmokers.

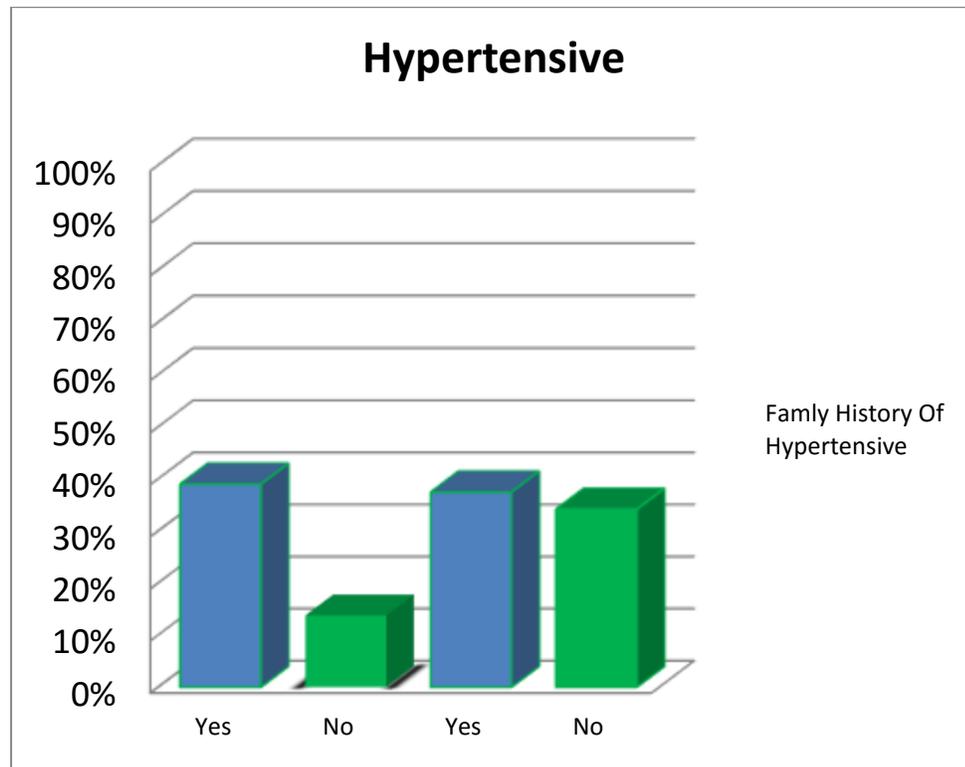
63 percent of respondents also reported to have a positive family history of hypertension whereas 37 percent did not have any known family history of the disease.

**Table 2:**

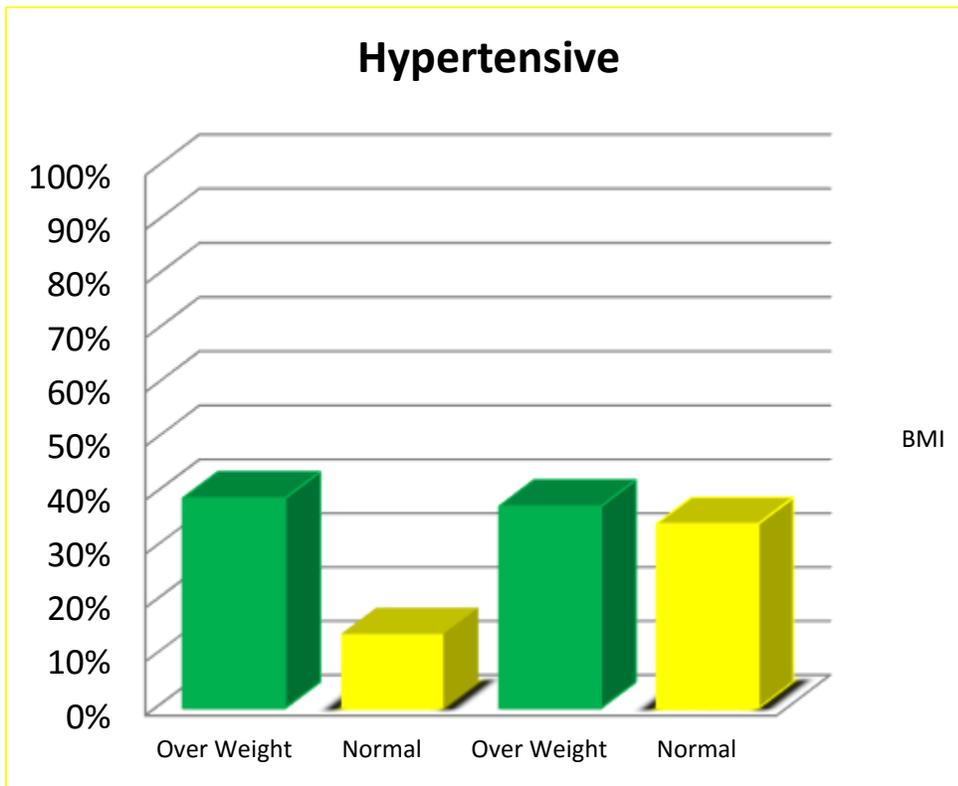
		Past\Current Smoker			
		yes		No	
		Count	Column N %	Count	Column N %
Hypertension	Yes	9	47.4%	31	38.3%
	No	10	52.6%	50	61.7%
		Gender			
		Male		Female	
		Count	Column N	Count	Column N
Hypertension	Yes	25	37.3%	15	45.5%
	No	42	62.7%	18	54.5%

		Family History of			
		Yes		No	
		Count	Column N	Count	Column N
Hypertension	Yes	32	50.8%	8	21,6%
	No	31	49.2%	29	78.4%
		Exercise at least once a week			
		Yes		No	
		Count	Column N %	Count	Column N %
Hypertension	Yes	19	36.5%	21	43.8%
	No	33	63.5%	27	56.2%

**Figure 1: Bar chart representing the prevalence of Hypertension in association with family history of the disease.**

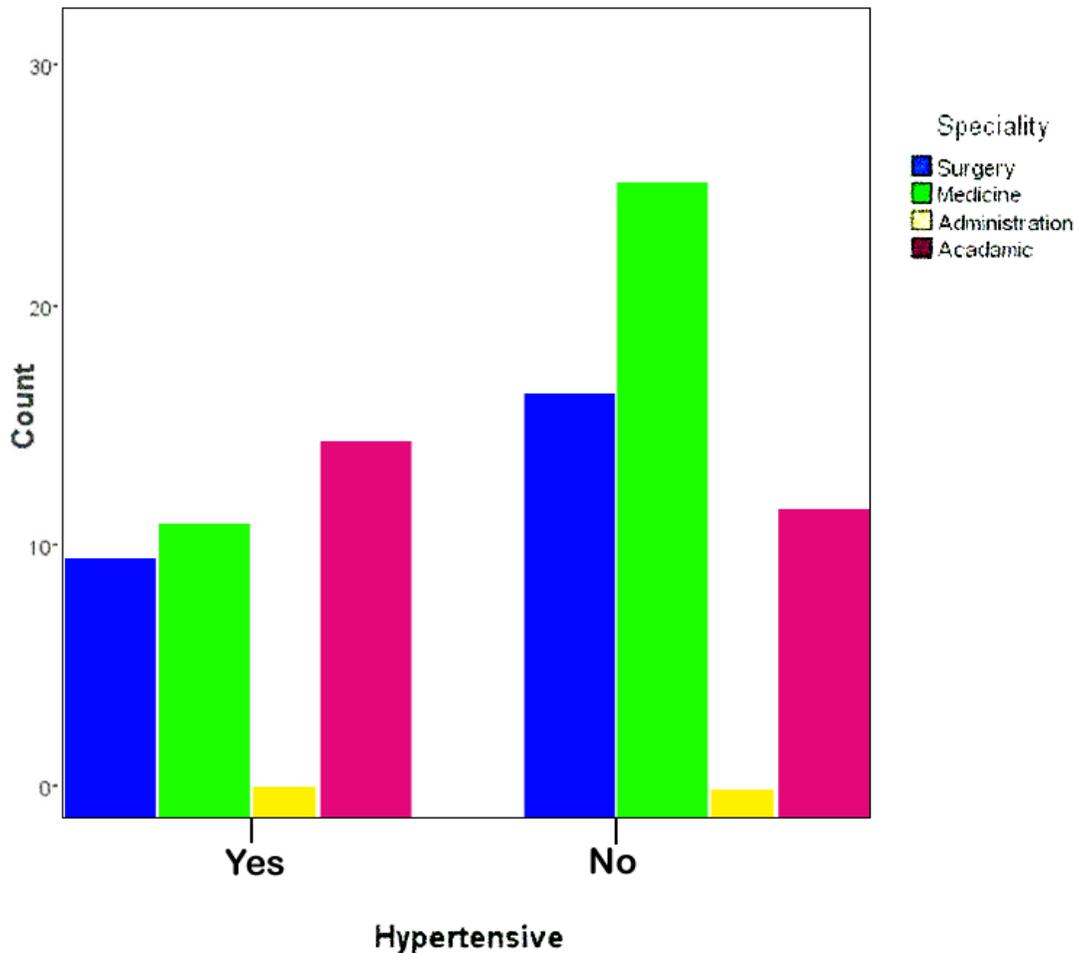


**Figure 2: Bar chart representing the prevalence of Hypertension in association with respective BMI of the Participants.**



**Figure 3 : Bar chart representing the prevalence of Hypertension in association with Speciality of Practice.**

positive) than males (of which only 37.3



The preliminary objective which we set out with was to establish the incidence of hypertension in males vs. females. Table 2 clearly suggests that female doctors of BVH have a much higher chance of developing hypertension (about 45.5 percent of the female doctors were hypertension

percent were hypertension positive). Females, hence, are 1.22 times more likely to be hypertensive.

We also compared the incidence of hypertension in doctors belonging to essentially different sub specialties. The results suggested that the lower occurrence of hypertension was in doctors who practiced medicine (30 %), followed by surgery

professionals who had a rate of 37.9%. Our research also revealed that 55.2 % of doctors who belonged to the academic sub speciality were known hypertensive, this being much higher than medicine or surgery, and hence it can be inferred that the stress faced by these doctors is more than their surgical or medical counterparts. Since only 2 participants belonged to the administrative sub speciality, we did not include their data in our research as it would be inadequate. This is shown in figure

3.

Data the various researches conducted over the past decade, some of which we have reviewed in our literature review, is highly suggestive that people who have at least one parent suffering from hypertension are significantly more likely to suffer from the same disease later on in their life i.e. people are genetically predisposed to the disease, and our data is also quite supportive of this. A staggering 50.8% of individuals who had a family history of hypertension were also hypertensive. Comparatively, only 21.6 % of people without a family history of hypertension actually had developed the disease.

Hence those with a positive family history are 2.35 times more likely to have the disease than those who do not have a positive family history. This data is shown in table 2 and figure 1.

Once again our research has supported the already established notion that hypertension is much more likely to develop in overweight individuals than in people with a normal body weight. We counted anybody who has a BMI of 25 or above as being overweight and the results show that about 51.0 % of overweight individuals were also hypertensive. In contrast, there were only 29.4% of people who had a normal body weight and also had developed hypertension. Overweights, hence, were 1.73 times more likely to develop hypertension in comparison with normal weighted individuals. This is shown in figure 2.

Past researches have positively correlated exercise with a decreased incidence of hypertension and our research also supports this. There is a significant difference in the incidence of hypertension in individuals who did exercise at least once a week (36.5% of these were hypertensive) and those that did not (43.8% of these were hypertensive). To put it in other words, a person is 1.2 times more likely to suffer from hypertension if

he lives a sedentary inversus individuals who exercised at least once a week, but we are unsure as to whether this is a plausible conclusion or not. This is shown in table 17, figure 22 and figure 23.

Respondents who were past\current smokers had an incidence of hypertension of 47.4 percent whereas those who were nonsmokers only had an incidence of 38.3 percent. Hence our data does suggest though that if a respondent has been a past smoker or is a current smoker, than he is 1.24 times more likely to be hypertensive. This is shown in table 2.

### **Discussion**

This research was conducted to observe the prevalence of hypertension among the doctors of Bahawal Victoria Hospital Bahawalpur. There were several risk factors brought under consideration to see how effective they were in bringing variation. Our sample consisted of a hundred doctors belonging to different specialties, having different lifestyles.

In this study we found out that in our sample about 40% had hypertension, while on the other hand in a study conducted at khatmandu medical college, the prevelance of hypertension in a medical college of

odisha was 67%. In another college in Utarpardesh the prevalence was 21.33%.<sup>9</sup> in a study conducted USA, the prevalence was 26.8% during the time 1999 to 2004. <sup>10</sup>

In our present knowledge males were dominant and so the females were less in number, whereas in a study conducted by the medical students of khatmandu medical college they also had a male dominant sample.<sup>11</sup> From our male dominant sample about 25% males were hypertensive but 28% females had hypertension. So in a male majority sample, greater females were hypertensive but in a research done in United States there were greater number of males having hypertension instead of female. So an absolute contrast was observed.<sup>13</sup>

From among the various risk factors that were under consideration, BMI was of vital importance because it has quite a direct relation with our illness under study. In our study 51% of people who had BMI greater than 25 i.e. overweight while in study conducted in United States had 15% prevalence of hypertension among overweight individuals.<sup>12</sup>

Another risk factor was studied and it was found that the incidence of hypertension among smokers was 47.4% whereas in non-smokers it was 38.3% and when it was compared to a

research done in Canada, the results were opposites i.e. they had lesser prevalence of hypertension among the smokers than the non-smokers.<sup>14</sup>

One of the important factors, which comes into our mind when we discuss hypertension, is exercise or physical activity. One of the research, conducted in 1984 about the effects of exercise upon the incidence of hypertension depicted lesser incidence of hypertension among individuals who were into physical activity.<sup>14</sup> whereas our research did not show any significant variation in incidence among the exercising and non-exercising hypertensive patients.

According to research published in American journal of hypertension, people having sedentary lifestyle were more inclined towards hypertension." But unfortunately, our research was not able to define any possible correlation of leisurely lifestyle with the development of hypertension.

In the very end, we can conclude that the incidence of hypertension is exclusively affected by age, gender, BMI, exercise, smoking etc. This notion of ours has also been reinforced by many other researches on these topics as described earlier.

## **Recommendations**

First of all, the proper education and counseling about the hypertension must be done. People should be told what kind of lifestyle modifications should they bring about to reduce the prevalence of this disease.

People should try to work out on daily basis to keep the BMI in check. Obesity has to be eradicated.

Society has to act by reducing the smoking to a minimum. Sedentary lifestyle has to be discouraged.

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