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# A Study to find Prevalence of Hypertension and its Related Risk Factors among Medical Students of Government Medical College in U.P

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## ABSTRACT

Background: Hypertension is a major public health problem. Being a non communicable disease it has been following ascending trend for last few decades. **Objective:** A Study to find Prevalence of Hypertension and its related risk factors among medical students of Government Medical College in U.P.

**Material and Methods:** This was a cross sectional study carried out among the undergraduate medical students of GSVM medical college Kanpur, UP. The study was conducted over a period of 6 months from July 2021 to December 2021.

**Results:** About 80% of students were less than 20yrs of age and majority of them resided in hostel. Most of them were male and hindu by religion. 88% of participants were vegetarian. Most of the subjects (72%) were using excess salt in their diet and 62% were consumed junk food daily. Out of 500 students 56% were normal.30% students presents with elevated BP. 11% and 3% were presenting with stage 1 and stage 2 hypertension.

**Conclusion:** Hypertension is the first step in development of various chronic diseases like CAD, stroke, and renal failure. So timely intervention is important and compliance of patients is also to be ensured.

**Keywords:** Hypertension, Prevalence, Risk factors, Medical Students.

## INTRODUCTION

Hypertension is a major public health problem. Being a non communicable disease it has been following ascending trend for last few decades. The epidemiology of demographic transition states that a long term shift occurs in mortality in disease pattern, whereby infectious disease are gradually displaced by degenerative and man-made disease as the chief form of morbidity and death.[1] Out of the 57 million deaths reported globally, 36 million (63%) deaths and 44% of DALYs are attributed to NCDs, principally cardiovascular disease, diabetes, hypertension, cancers and chronic respiratory diseases.[2] Globally speaking India experienced the highest loss in potentially productive years, when compared to

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communicable disease, NCDs approx. contribute 235 million DALYs , whereas the formers leads to 222 million DALYs.[3,4] The WHO has already warned of increasing NCDs among adolescents as a major health problem.[5] HT confers the highest attributable risk to death from cardiovascular disease and epidemiological data provide convincing evidence that the risk of cardiovascular disease related to HT is graded and continuous.[6,7]

Knowledge of predisposing risk factors is vital in the modification of lifestyle behavior conductive to optimum cardiovascular health.[8,9] Research has documented that adolescent is the appropriate time period for intervention.[10] Adolescent usually make their own choices and lifestyle which are mostly risk factors for NCDs like their sedentary habit, dietary pattern, obesity, smoking and alcohol consumption. It is easy to incultate healthy behaviour at young age rather than to modify behaviour at later age or after the onset of disease.[11]

In India home to 253 million adolescent, the food processing industry is one of the fastest growing sector and account for about 50% to 60% of the consumption of edible sugar, salt & fat.[12] About 85% food product consumed in India are processed.[13] Children are an important target for the food industry as companies can influence their current dietary preference and can also lay the foundation for taste preference & brand loyalty that can last into adulthood.[14]

According to WHO ¾ of adolescent in SEA regions have insufficient physical activity meaning they do not engage in at least 60 minute of moderate to vigorous intensity physical activity everyday.[15] So keeping in mind the fact that hypertension is affecting the most active class of society. We planned to study prevalence and risk factors for HT among medical students.

## MATERIAL & METHODS

This was a cross sectional study carried out among the undergraduate medical students of GSVM medical college Kanpur, UP. The study was conducted over a period of 6 months from July 2021 to December 2021. Purpose of the study was explained to all and informed consent was taken from each participant. Total 500 students were included in the study. Students were interviewed using predesigned and pretested semi- structured questionnaire to collect personal and demographic details. Blood Pressure was measured using auscultatory method with standard mercury column sphygmomanometer using appropriate size cuff encircling 80% of arm and arm supported at heart level. Two separate readings were taken and average of two were recorded. New ACC/AHA high blood pressure guidelines 2021, (normal: less than 120/80 mm Hg, Elevated: Systolic 120-129 mm Hg and Diastolic <80 mm Hg, Stage 1: Systolic 130-139 mm Hg and Diastolic 80-89 mm Hg, Stage 2: Systolic at least 140 mm Hg and Diastolic at least 90 mm Hg) were used to classify blood pressure. Standing weight and height were measured with standard method. Weight was measured without heavy clothing and footwear. Height was measured with portable stadiometer. WHO guidelines were used to classify BMI (underweight: <18.5 kg/m2, healthy weight: 18.5-24.9 kg/m2, Overweight: 25.0-29.9 kg/m2, Obesity: 30.0 and above).

## RESULTS

About 80% of students were less than 20yrs of age and majority of them resided in hostel. Most of them were male and hindu by religion. 88% of participants were vegetarian. Most of the subjects (72%) were using excess salt in their diet and 62% were consumed junk food daily. About 15% of participants were obese and 31% had family history of hypertension.24% of students were either smoker or alcoholic and 75% had no regular physical activity.

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**Table 1: Sociodemographic Profile of Study Subjects**

| Socio-demographic profile | No. | percentage |
|---|---|---|
| Age | | |
| <19yrs | 214 | 42.9% |
| 19-20yrs | 182 | 36.4% |
| 20-21yrs | 104 | 20.7% |
| Place of stay | | |
| Hostel | 442 | 88.4% |
| Home | 58 | 11.6% |
| Gender | | |
| Male | 392 | 78.4% |
| Female | 108 | 21.6% |
| Year of study | | |
| 1st year | 180 | 36% |
| 2nd year | 152 | 30.4% |
| 3rd year | 168 | 33.6% |
| Religion | | |
| Hindu | 457 | 91.3% |
| muslim | 43 | 8.7% |
| Body mass index | | |
| Obese | 78 | 15.6% |
| Overweight | 164 | 32.8% |
| Normal | 258 | 51.6% |
| Food habits | | |
| Veg | 442 | 88.47% |
| Non-veg | 58 | 11.53% |
| Excess salt consumption | | |
| Yes | 364 | 72.7% |
| No | 136 | 27.3% |
| Family history of hypertension | | |
| Yes | 157 | 31.3% |
| No | 343 | 68.7% |
| smoking or alcohol intake | | |
| Yes | 118 | 23.6% |
| No | 382 | 76.4% |
| Physical activity | | |
| No exercise | 376 | 75.2% |
| >30min/day | 124 | 24.8% |
| Junk food intake | | |
| <3times/week | 53 | 10.6% |
| >3times/week | 133 | 26.6% |
| daily | 314 | 62.8% |

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**Table 2: Prevalence of hypertension among study subjects**

| Blood pressure status | No. | percentage |
|---|---|---|
| Normal | 280 | 56% |
| Elevated | 150 | 30% |
| Stage 1 | 55 | 11% |
| Stage 2 | 15 | 3% |
| Hypertensive crisis | 00 | 0% |

Out of 500 students 56% were normal.30% students presents with elevated BP. 11% and 3% were presenting with stage 1 and stage 2 hypertension.
Significant association were found with age, gender, place of stay, BMI, family history of hypertension, physical activity, type of diet, and junk food and association was not significant with religion, year of study, and addiction.

**Table 3: Association of various risk factors with hypertension**

| Risk factors | Hypertensive | Normal | p-value |
|---|---|---|---|
| Age | | | |
| <19yrs | 12 | 202 | **<.05** |
| 19-20yrs | 28 | 154 | |
| 20-21yrs | 30 | 74 | |
| Place of stay | | | |
| Hostel | 48 | 394 | |
| Home | 22 | 36 | **P<.05** |
| Gender | | | |
| Male | 62 | 330 | **P<.05** |
| Female | 8 | 100 | |
| Year of study | | | |
| 1st year | 20 | 160 | p>.05 |
| 2nd year | 22 | 130 | |
| 3rd year | 28 | 140 | |
| Religion | | | |
| Hindu | 55 | 405 | p>.05 |
| Muslim | 15 | 28 | |
| Body mass index | | | |
| Obese | 42 | 36 | |
| Overweight | 20 | 144 | **P<.05** |
| Normal | 8 | 250 | |
| Food habit | | | |
| Veg | 50 | 392 | p>.05 |
| Non-veg | 20 | 38 | |
| Excess salt consumption | 62 | 302 | **P<.05** |
| Yes | 8 | 128 | |
| No | | | |
| Family h/o hypertension | 42 | 115 | **P<.05** |
| Yes | 28 | 315 | |
| No | | | |
| Smoking or Alcohol | | | |

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| | | | |
|---|---|---|---|
| intake<br>Yes<br>No | 18<br>52 | 100<br>330 | p>.05 |
| Physical activity<br>No exercise<br>>30min/day | <br>38<br>22 | <br>338<br>92 | <br>**P<.05** |
| Junk food intake<br><3times/week<br>>3times/week<br>daily | <br>13<br>21<br>36 | <br>40<br>112<br>278 | <br><br>**P<.05** |

## DISCUSSION

With changing trends, NCDs are becoming the popular diseases among young adults. Younger age group is the most susceptible phase for adopting the harmful lifestyle factors as well as for modifying the risk factors for NCDs. Therefore, the current study was done to assess the prevalence of hypertension and its risk factors among medical students.

In this study, out of the 500 students 14% of the students were hypertensive (including stage 1 and stage 2 hypertension), while 30% were presented with elevated Blood Pressure. Total 500 medical students were included whose age ranged from 19-21 yrs. Male were 78.4% and female were 21.6%, which was similar to study done among the medical students in New delhi in 2009-10, male was higher than female by proportion. Significant association (P< 0.05) were found between weight and hypertension that was similar to Wang L et al, Greenlund KJ et al and Gupta R et al study.[16-18] In present study 31.3% students had family history of hypertension similar to Mahmood et al.[19], who reported 30.3% family history of hypertension.

In the current study prevalence of smoking and alcohol were 24% and 26% which was similar to Ibrahim et al.[20] in which smokers were 26.2% and alcoholic were 25.5 % while in Rustag et al study, prevalence of alcohol was 30%. Most of the subjects were using excess salt in their diet which was similar to skemiere et al.[21] and Ibrahim et al.

Exercise has great effect on overall wellbeing. It is estimated that 2 million deaths are caused due to inadequate physical activity.[22] In our study 24.8% of subjects had regular physical activity which was similar to Ibrahim et al in which 30% of students had the habit of regular physical activity and Ismail et al study found that 39.3% of the students exercised regularly. The present study shows that almost 62% of the students using junk food on regular basis which was similar to Ismail et al.[23] which showed that 65.9% of the students ate junk food more than three times a week.

## CONCLUSION

Hypertension is the first step in development of various chronic diseases like CAD, stroke, and renal failure. So timely intervention is important and compliance of patients is also to be ensured. There is strong need to initiate screening strategies at an early age and promoting opportunistic screening for HT during routine health checkup. Medical students itself involved in delivery of health services to a large section of society. So applying the preventive and control program among them is really needed to improve their attitude toward risky lifestyle factors & to control morbid condition at an early stage.

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