

# Prevalence of hypertension in adolescents & young adults

## Background

Generally, the context in which an individual lives is of great importance for both his health status and quality of life. It is increasingly recognized that health is maintained and improved not only through the application of health science, but also through the intelligent lifestyle choices of the individual and society. Many of us are living a life that leads to high blood pressure or hypertension. As age increases, situation gets even worse. The problem with this disease is that one third of people who have hypertension do not know it because they never feel any direct pain. It is also one of the major risk factors for cardiovascular disease & stroke. The largest proportion of noncommunicable disease deaths is caused by cardiovascular diseases (48%). In that 13% of global deaths are caused due to hypertension & it is considered as 4th contributor to premature deaths in developed countries and 7th in developing countries. With growing problem of hypertension worldwide, there is a concern that hypertension in young adults may also be on the rise & that cases are not detected because of inadequate screening at this age group. Repeated testing, blood pressure measurement & monitoring are required to distinguish this group from true hypertension. Such studies insight into the magnitude of the health problem in young adults & are important in determining the need for early blood pressure monitoring. It is never too early to start lifestyle modification and intervene to prevent hypertension, heart disease and diabetes. Hypertension, heart disease and their prevention have been perceived as more relevant to an older population, but now we know that slight changes in blood pressure and weight should represent an alert for adolescents & young adults to begin prevention as early as possible. It is better to prevent a disease than treat it.

## Objectives:

- To assess prevalence of hypertension in adolescents & young adults.
- To assess the risk factors of hypertension in adolescents & young adults.
- To correlate the hypertension with selected demographic variables.

## Method

The approach used in this quantitative study was explorative approach & hence descriptive survey method was used. The population comprised all adolescents and young adults of Pune city. The sample consisted of 500 adolescents (aged 16-19) and 500 young adults (aged 20-25) college students from selected colleges of Pune city. The colleges were selected by random sampling i.e. lottery method. Students were selected by simple random sampling technique. It was hypothesized that young adults are having higher levels of blood pressure than adolescents.

## Development of tool

The investigator prepared questionnaire for interview to assess prevalence of hypertension. The questionnaire consisted of three sections.

Section I dealt with the demographic variables like age, gender, religion, type of family, monthly family income and stream.

Section II consisted of clinical profile i. e. height, weight, body mass index, blood pressure level, presence of any diseases and history of hypertension in parents. Body mass index was calculated and categorized as underweight (BMI<18.5), normal (BMI 18.5 to 24.9), overweight (BMI 25 to 29.9) and obese (BMI >30). Hypertension and prehypertension were defined as per Joint National Committee (JNC) VII criteria

Section III included lifestyle pattern. It included questions related to nutrition habits, personal habits, physical activities, and stress level.

In nutritional assessment subjects were asked about last three days eating pattern, type of diet they consume, intake of sweets, fast foods, fruits, and vegetables and use of extra salt during meals.

In personal habits subjects were asked about frequency of smoking, exposure to passive smoking, frequency of chewing of tobacco and gutkha.

In physical activity subjects were asked about their frequency of exercises, exercise pattern, number of hours they work on computer, number of hours they watch television and sleep pattern.

Stress level was assessed with the help of modified Inventory of college students' recent life experiences stress scale. In this stress level was assessed under physical, emotional, social, academic, and economic stress categories. Each category had five questions which were rated from zero to three. Total score of stress level was counted as mild stress (0-25 score), moderate stress (26-50 score) and severe stress (51-75 score).

### Reliability

The reliability coefficient for clinical profile i.e. for blood pressure measurement, height, weight & body mass index was calculated by interrater reliability. (Cohen's Kappa coefficient). The reliability coefficient for lifestyle pattern and stress level was calculated by test retest method. (Karl Pearson's coefficient of correlation).

### Data collection

Blood pressure was determined by auscultating in right arm by standardized method using mercury sphygmomanometer. Weight was measured with Omron body weight scale HN-283. Height was measured by standard measuring tape

### Findings of the study

#### Findings related to sample characteristics

**Table 1**

#### Description of samples according to personal characteristics

n=500,500

Sr No	Demographic variable	Adolescents		Young adults	
		Freq	%	Freq	%
1	Age				
	16-19 years	500	100.0%	0	0.0%
	20-25 years	0	0.0%	500	100.0%

<b>2</b>	<b>Gender</b>				
	Male	271	54.2%	288	57.6%
	Female	229	45.8%	212	42.4%
<b>4</b>	<b>Family</b>				
	Nuclear	376	75.2%	369	73.8%
	Joint	114	22.8%	116	23.2%
	Extended	8	1.6%	12	2.4%
	Single parent	2	0.4%	3	0.6%
<b>5</b>	<b>Income</b>				
	Less than Rs. 15000	13	2.6%	5	1.0%
	Rs. 15001-30000	32	6.4%	47	9.4%
	Rs. 30001-45000	167	33.4%	165	33.0%
	More than Rs. 45000	288	57.6%	283	56.6%

In Table No 1 it is seen that More than half (54.2%) of the adolescents were males and 45.8% of them were females. More than half (57.6%) of the young adults were males and 42.4% of them were females. 75.2% adolescents & 73.8% young adults were from nuclear family. Maximum adolescents & young adults had family monthly income of more than Rs 45000/-

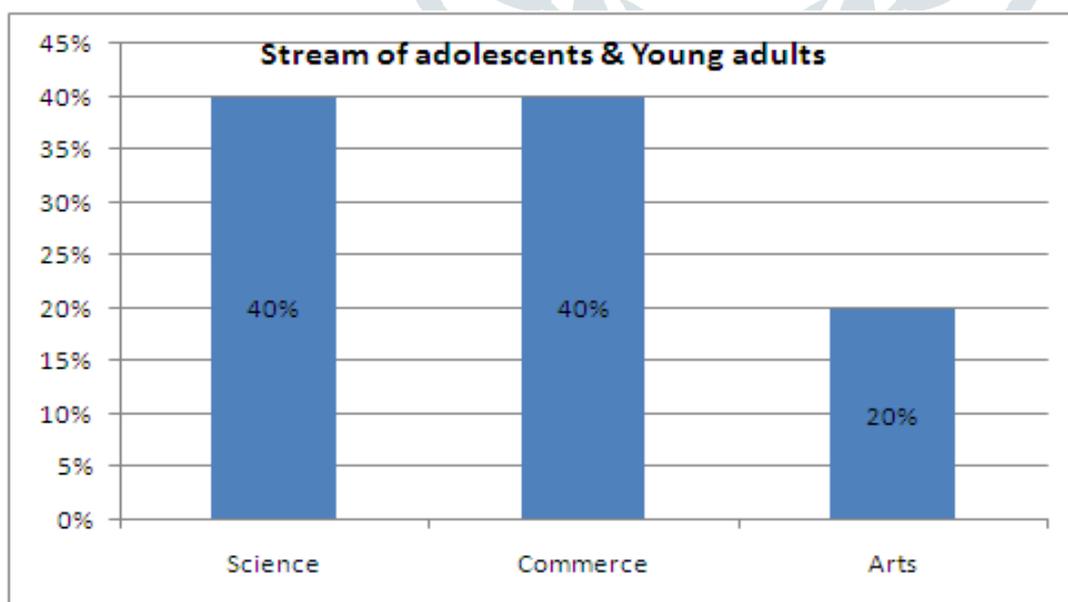


Fig. 1

Bar graph showing college stream of adolescents and young adults

Figure No.1 shows that 40% of adolescents and young adolescents were from science stream, 40% of adolescents and young adolescents were from commerce stream and 20% of adolescents and young adolescents were from arts stream.

Findings related to clinical profile of adolescents and young adults

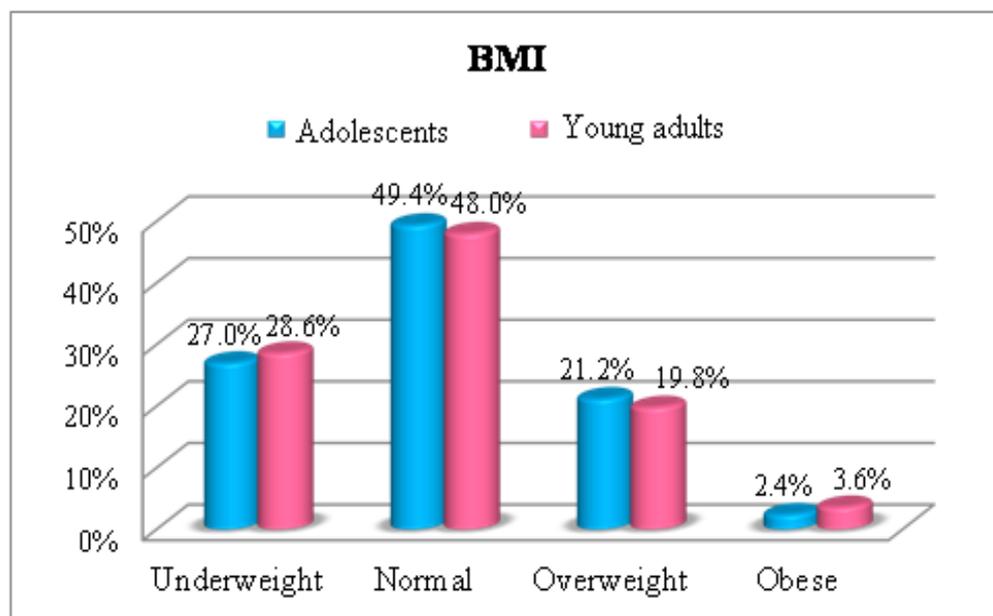


Fig. 2

Bar graph showing BMI levels of adolescents and young adults

Figure No 2 indicates that 49.4% of the adolescents had normal BMI, 27% of them were underweight, 21.2% of them were overweight and 2.4% of them were obese. 48% of the young adults had normal BMI, 28.6% of them were underweight, 19.8% of them were overweight and 3.6% of them were obese.

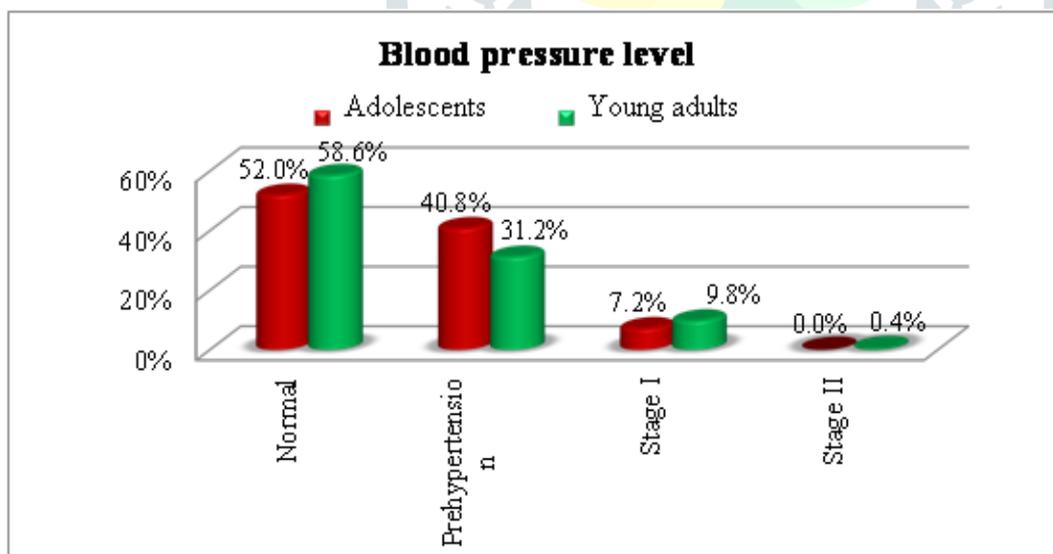


Fig 3

Bar graph showing blood pressure levels of adolescents and young adults

Figure No 3 shows that more than half (52%) of the adolescents had normal blood pressure level, 40.8% of them were in prehypertension stage and 7.2% of them were in stage I hypertension level. More than half (58.6%) of the young adults had normal blood pressure level, 31.2% of them were in prehypertension level, 9.8% of them were in stage I hypertension level and 0.4% of them were in stage II hypertension level.

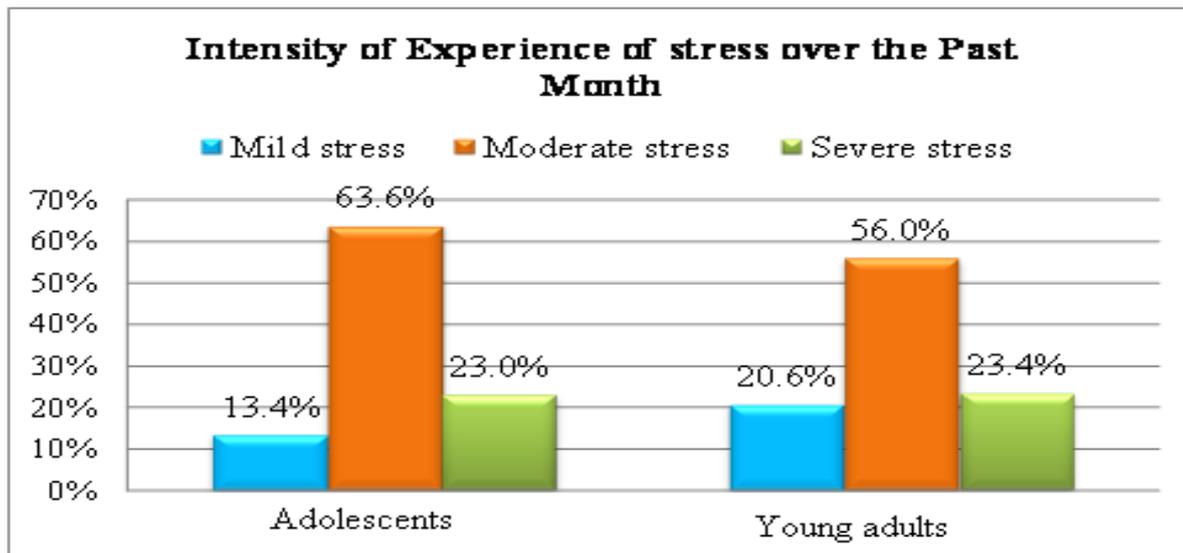


Fig 4  
Bar graph showing intensity of stress over past one month

In figure No 4 it is seen that 63.6% of the adolescents had moderate stress over the past month, 23% of them had severe stress and 13.4% of them had mild stress over past month. It is also seen that of 56% of the young adults had moderate stress over the past month, 23.4% of them had severe stress and 20.6% of them had mild stress over past month.

Association between hypertension and sample characteristics, clinical profile and lifestyle pattern

The association of hypertension with demographic variables of adolescents and young adults was assessed using Fisher's exact test. Association was seen between age and gender, body mass index and parental history of hypertension with hypertension at  $p < 0.01$  level.

In nutritional assessment there was no association between eating of sweets, extra salt intake but there is significant association between pattern of diet, eating fast foods, fruits, and vegetables with hypertension at  $p < 0.01$  level.

In personal habits smoking was found to have significant association with hypertension at 0.05 level.

In activity pattern, frequency of exercise, number of hours working on computer in a day was found to have significant association with hypertension. There was no association between number of hours watching television and number of hours sleeping in adolescents and young adults.

There was significant association between hypertension and stress level at  $p < 0.01$  level.

There was significant association between type of family and stress level at  $p < 0.01$  level.

Table 2

Correlation of blood pressure levels among adolescents & young adults

Blood pressure	Group	Mean	SD	Z	P value
Systolic blood pressure	adolescents	115.4	10.5	1.65	0.0595
	young adults	114.3	11.7		
Diastolic blood pressure	adolescents	76.5	7.2	1.01	0.1566
	young adults	76	7.4		

Researcher applied two sample z- test for the comparison of blood pressure (systolic and diastolic blood pressure). The calculated z value for this comparison for systolic blood pressure is 1.65. The calculated z value for this comparison for diastolic blood pressure is 1.01. Corresponding p value is  $> 0.05$ . So there is no significant correlation of blood pressure levels among adolescents and young adults. So alternative hypothesis is rejected.

#### Conclusion

Modifiable risk factors of hypertension do exist among adolescents and young adults. So, it is recommended that regular screening and monitoring of blood pressure should be a part of school and college health activities. As well as public health education on hypertension and its associated risk factors should be strengthened. Population is now aware that hypertension can be inexpensively and easily detected. Education will help them to recognize the need for regular screening, identify risk factors and have control over them.

#### References

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