

## IS THE YOUNGER GENERATION ALERT ENOUGH TO FACE THE CHALLENGES OF HYPERTENSION?

Shweta Sahu<sup>\*</sup>

Ratan K. Srivastava<sup>\*\*</sup>

Manushi Srivastava<sup>\*\*\*</sup>

S.P. Singh<sup>\*\*\*\*</sup>

### ABSTRACT

**Background:** The prevalence of hypertension is on increase in developing countries. WHO estimated 972 million hypertensive people in the year 2010 where 65% lived in developing countries with the number predicted to grow to 1.5 billion by 2025. Change in living patterns, lack of knowledge & awareness to prevent it are major issues. There seems a definite need to monitor the magnitude of the problem, knowledge & awareness among young groups & then plan accordingly the intervention strategy for the same to make them alert & concern for their better healthy life.

**Objective:** To assess students' knowledge about high blood pressure & their attitude towards its complexity. **Method:** A cross sectional survey was conducted among young female hostellers from different streams in Banaras Hindu University, Varanasi. A set of questions assessing lifestyle related health risk behaviour, awareness & knowledge of high blood pressure were used. **Result:** The analysis of data showed that majority of the girls i.e. around 97% have heard the term High Blood Pressure but lacking the knowledge what exactly hypertension means. More than half of the girls confirmed that their B.P was measured earlier, whereas only 45% were aware of what normal blood pressure reading should be. More than two-third of the students accepted that less stress & regular exercise can prevent high blood pressure. **Conclusion:** The study identified some gaps in knowledge regarding hypertension among students. Evidence of such information would enable health promotional activities tailored to the needs of young age group to prevent high blood pressure & associated diseases.

**Keywords:** *Hypertension, High Blood Pressure, Risk factors, Young generation, Awareness*

<sup>\*</sup> Research scholar, <sup>\*\*</sup>. Professor & Supervisor, <sup>\*\*\*</sup>. Asst. Professor & corresponding author, <sup>\*\*\*\*</sup>. Professor, Department of Community Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

## Introduction

Hypertension is a major contributor to the global disease burden. It poses an important public health challenge to both economically developing and developed countries including Asia<sup>1</sup>. Patients of hypertension rarely manifest any symptoms which lead to about 7.5 million deaths annually from heart attacks, stroke, other cardiovascular diseases and kidney disease. Hypertension was the theme for World Health Day by WHO in 2013. World Health Organization terms it as a global health crisis and a 'silent killer' that may kill you even before you know it. Hypertension, if left untreated can lead to heart disease, stroke or kidney damage and is responsible for more than 9 million deaths every year<sup>2</sup>.

With globalization bringing more lifestyle modifications, adolescents are exposed to multiple risk factors including obesity and also family history of hypertension<sup>3</sup>. Cardiovascular diseases, particularly hypertension, account for high mortality in the form of cardiovascular strokes in countries like India, Taiwan and Japan. In Indian adolescent school children, there is a high prevalence of obesity, hypertension, and hypercholesterolemia<sup>3</sup>. A major public health problem in both urban and rural areas, the incidence of hypertension is growing at an alarming rate, including among the younger population. Hypertension is an important risk factor for cardiovascular diseases that have already taken epidemic proportions in the country<sup>2</sup>. Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults, as they are considered to be at a lower risk of developing the disease. With a growing problem of hypertension worldwide, there is a concern that hypertension in young adults may also be on the rise and that cases are not detected because of inadequate screening in this age group<sup>1</sup>.

According to the assessment of the CADI (Coronary Arteries Disease in Asian Indians) Research Foundation the prevalence of hypertension ranges from 20-40% in urban adults and 12-17% among rural adults in India. The number of people with hypertension is projected to increase from 118 million in 2000 to 214 million in 2025. This poses a grave risk to the future of India's health<sup>2</sup>.

The prevalence and rate of diagnosis of hypertension in children and adolescents appears to be increasing<sup>2</sup>. Research in this area will help policy makers to see if there is a need for

addressing this problem effectively in prevention and management of hypertension in children and adolescents. Early diagnosis of Hypertension is an important strategy in its control, which will be useful in tracking and effective treatment, to prevent further complications<sup>3</sup>.

### Relevance of The Study:

In both developed and developing countries, many people with hypertension are not aware of their condition and also not adequately treated. As with other chronic diseases, weaknesses in health care systems probably contribute to the inadequate treatment of hypertension. However most individuals can maintain good healthy blood pressure level, which reduces probability of death and disability from cardiovascular and kidney disease, by making lifestyle changes and/or by taking antihypertensive drugs.

### Objective

- To assess knowledge and awareness of young hostel inmates about high blood pressure/hypertension.
- To assess their attitude towards its complexity.

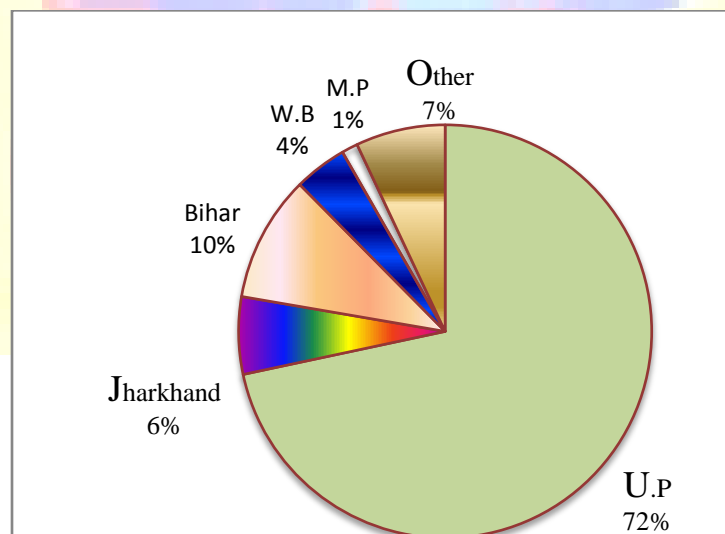
### Material and method

- It was a cross sectional exploratory study conducted to evaluate Knowledge, Awareness and Attitude among young female hostellers from three different streams (Arts, Science & Commerce) in Banaras Hindu University (BHU) about Hypertension (High Blood Pressure). It was decided that all the girls from Triveni complex which includes five hostels in it and one more hostel SNPG will be taken including graduates & post graduates and precision estimates at 95% Confidence Interval associated with varying response rates will be calculated.
- A pretested structured questionnaire assessing lifestyle related health risk behaviour, awareness & knowledge of high blood pressure was used.

## Results

### Demographic Profile of the Subjects

India is a nation of diversity with different culture, languages, lifestyle, and people with various other aspects but in terms of knowledge it becomes the same at all level. The study was carried out among female hostellers of BHU which showed their diversity from regions and culture as well, we tried to assess what they know about this serious disease and its consequences. The sample population comprised of 314 subjects with the mean age of 20 years (range 17-28 years) .The graduates comprising of 60.5 % of the study proportion whereas post graduates were 39.5 %. Nearly two-third (71.7%) of the subjects belonged to U.P followed by Bihar, Jharkhand, West Bengal, Madhya Pradesh and remaining from other states which showed the diversity of belonging. In context of different streams out of 314 respondents, 145 (46.2%) were from Arts, 138 (43.9%) from Science and rest 31 (9.9%) from Commerce. For further analysis the students of Commerce were clubbed with Arts students from onward tables. The reason behind for doing so was that during data collection we found only limited number of commerce students and as compared to arts and commerce, science is considered as more technical and experimental field. That's why we kept science separated, arts and commerce students were clubbed in one group.



**Figure.1 Pie diagram showing distribution of the hostel inmates according to their states (n=314)**

The table 1 shows that total 314 students were from three different streams i.e. majority (56.0%) from Arts including Commerce in it, followed by Science (43.9%). The maximum no. of girls were from the age group of 17-22 yrs with the mean age of 20 yrs. While talking about their eating habits more than half (57.6 %) preferred being vegetarian and remaining (42.4%) like non vegetarian food. In terms of physical activity around two-third of the girls (72.0%) from all streams said that they perform light exercises and go for walk to stay fit.

**Table.1 Stream of education in relation with age groups, dietary patterns and physical activity (n=314)**

Stream of Education	Age group		Dietary pattern		Physical activity		Total	
	17-22	23-28	Veg	Non-Veg	Active	Less Active	No	%
Arts & Commerce	138 (78.4)	38 (12.6)	103 (58.5)	73 (41.5)	119 (67.6)	57 (38.1)	176 (100.0)	56.0
Science	125 (90.6)	13 (9.4)	78 (56.5)	60 (43.5)	107 (77.5)	31 (22.5)	138 (100.0)	43.9
<b>Total</b>	263 (83.8)	51 (16.2)	181 (57.6)	133 (42.4)	226 (72.0)	88 (28.0)	314 (100.0)	100.0

(Figures in parenthesis are row wise percentage)

At the very initial level we tried to know about the basics related to the high blood pressure that whether subjects have ever heard of it or not and were aware of the things related to it or not. Table 2 shows the scenario of knowledge of the subjects about the High Blood Pressure, what they exactly know about this health problem. More than good enough proportion of subjects (96.8%; 95% C.I: 94.9 - 98.8 %) confirmed that they have heard about the term HBP. Around half of them (50.3%; 95% C.I: 44.8 – 55.8) also assured that they knew about the risk factors related to it. The analysis also showed that nearly half of them (47.5%; 95% C.I: 41.9 - 53.0) thought that lowering HBP would certainly improve a person's health.

**Table.2 Knowledge about High Blood Pressure (HBP) among subjects (n=314)**

Knowledge of Hypertension/HBP	No. of subjects who said Yes	Proportion	95 % C.I.
Ever heard of hypertension/HBP	304	96.8	94.9 - 98.8
People can do certain activity to improve their health	240	76.4	71.7 - 81.1

HBP is a non communicable disease	213	67.8	62.7 - 73.0
Know about risk factors related to HBP	158	50.3	44.8 - 55.8
Lowering HBP improve a person's health	149	47.5	41.9 - 53.0

The programme managers need to know about common terms which people generally use in their local language and also exact interpretation of it is very important. On being asked, do they know the meaning of term Hypertension, they were not sure of it but they had some idea about High BP, the proportion was (66.9%; 95% C.I: 61.7-72.1%). And one-third (30.9%; 95% C.I: 25.8 – 36.0) seemed confuse with the term and called it as High Level Stress/Tension (table 3).

**Table.3 Understanding of the term Hypertension by the respondents**  
(n=314)

Understanding of term Hypertension by respondents	Respondents		
	No.	Proportion	95% C.I.
High Blood Pressure	210	66.9	61.7 - 72.1
High Level Stress/Tension	97	30.9	25.8 - 36.0
Don't Know	7	2.2	0.6 - 3.9
Nervous Condition	6	1.9	0.4 - 3.4
High Blood Sugar	5	1.6	0.2 - 3.0

Having knowledge about risk factors related to a health issue is always helpful in dealing with it. Today's sedentary lifestyle, eating habits, less physical activities are the factors which are directly responsible for the rise to these kinds of diseases. In this study we observed that maximum girls i.e. (85.7%; 95% C.I: 81.8 - 89.5) emphasized on stress factor as most responsible for hypertension whereas more than half of them considered high salt intake (60.8%; 95% C.I: 55.4 - 66.2) and overweight (55.1%; 95% C.I: 49.6 - 60.6) as other major reasons for rise in the prevalence of hypertension as shown in table 4.

**Table.4 Enumeration of risk factors related to high blood pressure (HBP) identified by respondents (n=314)**

Risk factors	Respondents		
	No.*	Proportion	95% C.I.
Stress	269	85.7	81.8 - 89.5
High salt intake	191	60.8	55.4 - 66.2
Overweight	173	55.1	49.6 - 60.6

Old age	84	26.8	21.9 - 31.6
Excess coffee & tea	59	18.8	14.5 - 23.1
Drinking alcohol & smoking	28	8.9	05.8 - 12.1
Fruit intake	3	1.0	-0.1 - 2.0
Don't know	3	1.0	-0.1 - 2.0

\* Multiple responses

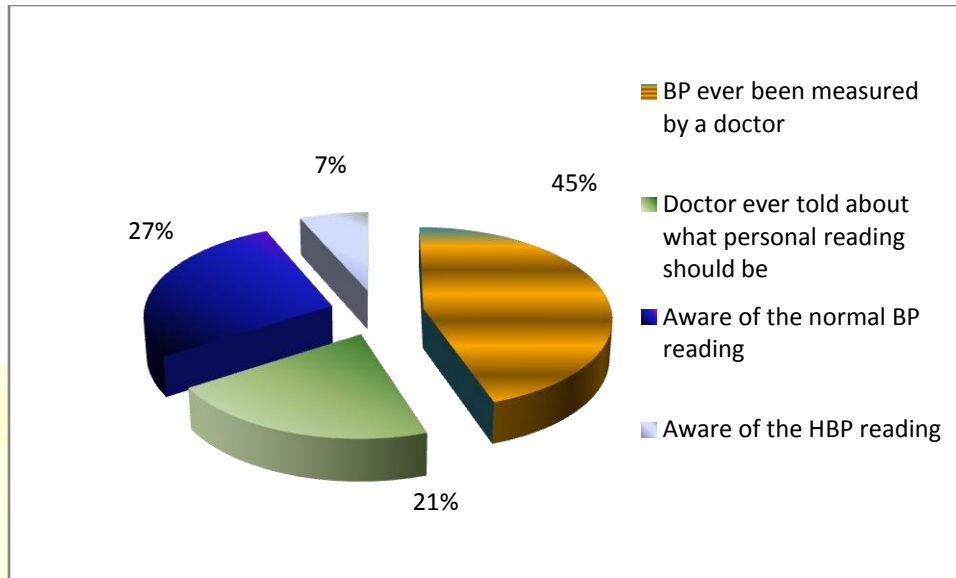
HBP is a disease which leads to serious kind of complications in the life conditions. On the question of what kind of complications HBP can lead to, more than two-third of the subjects (75.2%; 95% C.I: 70.4 - 79.9) opined that HBP is responsible for heart diseases whereas nearly half of them (48.4%; 95% C.I: 42.9 - 53.9) said that it may lead to brain damage. It was interesting to note that to an extent many of them were correct about their level of knowledge. One quarter (28.3%; 95% C.I: 23.4 - 33.3) said that it can also lead to kidney failure whereas 16.9% subjects (95% C.I: 12.7 - 21.0) were not sure and said that weakness can also occur due to this. (Table 5)

**Table. 5 High blood pressure (HBP) can lead to any of the complications stated by the respondents (n=314)**

Complications (Diseases)	Respondents		
	No.*	Proportion	95% C.I.
Heart diseases	236	75.2	70.4 - 79.9
Brain damage	152	48.4	42.9 - 53.9
Kidney failure	89	28.3	23.4 - 33.3
Weakness	53	16.9	12.7 - 21.0
Don't know	31	9.9	6.6 - 13.2
Blindness	27	8.6	5.5 - 11.7
Fever	10	3.2	1.2 - 5.1

\*Multiple Responses

One of the objective of the study was to check whether subjects were aware of the normal BP and HBP readings and whether their BP was ever measured? Less than half of the subjects (45%) accepted that earlier their BP was measured by the doctor and only one quarter of them (27%) had knowledge of normal BP level and only a small proportion of them i.e. (7%) were aware of HBP readings. This showed (figure 2) the lack of awareness among large group of young students and less concern about their own health



**Figure.2 Awareness of subjects about Normal & High Blood Pressure Readings (n=314)**

Information regarding the attitude and perception of subjects towards HBP was gathered in which more than half of the girls (50.3%; 95% C.I: 44.8 - 55.8) said that HBP is a lifelong disease whereas around (84.7%; 95% C.I: 80.7 - 88.7) were of the view that changing in lifestyle patterns can assuredly help in controlling this disease as majority of diseases of today's era are borne out of our present patterns of lifestyle (Table 6). Changes in lifestyle will certainly give us some good results. More than one third of girls (33.8%; 95% C.I: 28.5 - 39.0) were of the view that HBP is an avoidable part even with growing age which means that preventive measures taken in early stages of life will minimize future health problems.

**Table.6 Attitude and Perception of subjects towards High Blood Pressure (n=314)**

Attitude And Perception Towards Hypertension / HBP	Respondents who agreed		
	No.*	Proportion	95 % C.I.
Change in lifestyle can help in controlling HBP	266	84.7	80.7 - 88.7
Hypertension/HBP is something that you can cure	205	65.3	60.0 - 70.6
Hypertension/HBP is a lifelong disease	158	50.3	44.8 - 55.8
Hypertension/HBP is an avoidable part of aging	106	33.8	28.5 - 39.0

\*Multiple responses



Every individual has his/her own vision about life and the matters related to it whether in terms of health, education, privacy, priorities of life & time. Respondents were inquired about the perceived barriers in ‘Blood Pressure screening’ of general public. In response around 40.8% (95% C.I: 35.3 - 46.2) of the subjects were of the view that most of the people lack awareness of its need and almost same proportion of girls (40.1%; 95% C.I: 34.7 - 45.5) were of the view that people do not know about availability of services related to it. Around one-fourth of the respondents (27.7%; 95% C.I: 22.8 - 32.7) were of the opinion that they don’t retrieve time to go for regular BP checkups. Perhaps they don’t understand its necessity as been revealed in table 7.

**Table.7 Perceived barriers to public health checkups /Blood Pressure screening as described by the respondents (n 314)**

Perceived Barriers To Public Blood Pressure Screening	Subjects who agreed		
	No.*	Proportion	95 % C.I.
Lack of Awareness of its need	128	40.8	35.3 - 46.2
Lack of Awareness of available services	126	40.1	34.7 - 45.5
Don't know	112	35.7	30.4 - 41.0
Time constraints	87	27.7	22.8 - 32.7
Not a prioritised	68	21.7	17.1 - 26.2

\*Multiple responses

Respondents’ opinion about important factors which are responsible for controlling HBP were collected (Table 8). Stress was considered as the major factor and controlling of it can affect BP problem among population (79.3%; 95% C.I: 74.8 - 83.8) followed by doing exercise (72.6%; 95% C.I: 67.7 - 77.5) which is an important tool was considered by the respondents for prevention of many diseases. Less than half of the respondents (48.7%; 95% C.I: 43.2 - 54.3) assured that taking proper medications is essential but it’s not the only way out on which an individual can rely, he or she has to take certain precautions including diet and exercise along with it. The analysis also revealed that one-third respondents (31.2%; 95% C.I: 26.1 - 36.3) considered weight reduction as one of the important factor in controlling BP which can only be managed by proper diet, exercise and by healthy lifestyle practices.

**Table.8 Important factors in controlling Hypertension/HBP as replied by respondents.**

Important Factors In Controlling HBP	Subjects who agreed		
	No.*	Proportion	95 % C.I
Stress reduction in life	249	79.3	74.8 - 83.8

Doing exercise	228	72.6	67.7 - 77.5
Change of diet	189	60.2	54.8 - 65.6
Taking medications	153	48.7	43.2 - 54.3
Losing weight	98	31.2	26.1 - 36.3
Don't know	10	3.2	01.2 - 05.1

\*Multiple responses

## DISCUSSION

The present study assessed the knowledge about risk factors of hypertension among young females along with their attitude and perception towards it, so as to identify the areas to be emphasized in the health promotional activities through which we can generate awareness among younger generation to lead a healthy & productive life.

Risk factors of hypertension are not well studied in young adults and public awareness of hypertension in countries undergoing epidemiological transition is dismal. However, the results of the present study indicate that more than (85%) of the subjects were aware that stress is the main risk factor of hypertension. A good proportion of subjects (61%) were aware about the association of hypertension with high salt intake and (55%) for obesity. It is interesting to know that less than half of the subjects were aware of the normal BP level whereas only 10 % knew about HBP reading that is why they were not regular for their blood pressure checkups. However, a gap in knowledge was seen where (96.82 %) of respondents had heard about High Blood Pressure & its consequences but among them nearly (33 %) were not sure what the word Hypertension exactly means but were aware of the term 'High Blood Pressure'.

As shown in the results, 85% respondents' related stress to hypertension and 55% to obesity is quite near to the findings of a study conducted among medical students to assess their knowledge regarding risk factors of hypertension in a Gulf medical university (2011) where 70% of them related it with the same risk factors. In the present study 61% respondents were aware about the fact that high salt intake is one the risk factors of hypertension which was similar with the findings of the study of Gulf Medical University <sup>1</sup>.

In a study carried out in Seychelles among adults (1998), it was seen that a high proportion showed good basic knowledge of hypertension, where 96% were aware of the association of hypertension with salt and obesity. The benefit of physical exercise on BP was also well recognized by 79% of the subjects, most persons reported that smoking caused high blood pressure <sup>1</sup>.

A recent study on knowledge and perceptions about hypertension among neo- and settled-migrants in Delhi, India (2009), demonstrated that knowledge about hypertension was only moderate and comprehensive knowledge was lacking. Another study in Nepal (2007), with regard to the knowledge about heart attack and hypertension, among individuals attending a cardiac camp showed that the subjects were aware of the basic facts regarding myocardial infarction and hypertension. However, lacunae in knowledge were noted, the knowledge regarding hypertension were significantly lower among the subjects <sup>1</sup>.

Though few studies were found on Knowledge, Attitude and Practices regarding hypertension among medical students but no study could be found in general for students of other streams to assess their knowledge regarding hypertension. Literature seems silent on study of awareness about hypertension among young students that might be due to the opinion which considers it as an adult and old age problem but now scenario is changing and young generation is also getting trapped in the problems related to hypertension. An effort to quash the major risk factors of hypertension is the key aspect of lifestyle changes for hypertension control. Primary prevention aims to reduce or modify hypertension risk factors through the implementation of appropriate policies and educative programs, in order to avoid or delay the development of cardiovascular disorders, whereas, primordial prevention focuses on the prevention of the emergence of risk factors, and hence, the importance of the present study.

### Conclusion

The study identified some gaps in knowledge and a little careless attitude regarding High Blood Pressure among youngsters as they think it as an adult disease, unaware of the fact that it can harm them also. Evidence of such information would enable health promotion activities at smaller and larger levels tailored to the needs of young age group to prevent High Blood Pressure & associated diseases at the initial level to make the saying true, "*Prevention is better than cure*".

### References:

1. Shaikh B R, Mathew E, Sreedharan J, Muttappallymylil J, Sharbatti A S, Basha S A. Knowledge regarding risk factors of hypertension among entry year students of a medical university. (2011)(<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3237200/>) (accessed through internet 10.8.13)
2. Maimaris W, Paty J, Perel P, Legido-Quigley H, Balabanova D, Nieuwlaat R, Mckee M. The influence of health systems on hypertension awareness, treatment, and control: A systematic review. (2013) (<http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001490>)(accessed on 5.8.13)
3. Aubert L, Bovet P, Gervasoni JP, Rwebogora A, Waeber B, Paccaud F. Knowledge, attitudes, and practices on hypertension in a country in epidemiological transition. Hypertension. (1998) (<http://hyper.ahajournals.org/content/31/5/1136.long>) (accessed through internet 2.8.13)
4. Jasmine S Sundar\*, S. Joseph Maria Adaikalam, S. Parameswari, Valarmarathi.S, S. Kalpana, D. Shantharam. Prevalence and determinants of hypertension among urban school children in the age group of 13- 17 years in, Chennai, Tamil Nadu(2013)( <http://iosrjournals.org/iosr-jdms/papers/Vol8-issue3/D0831420.pdf>) (accessed through internet 1.9.13)