

## A study of hypertension & its risk factors among primary school teachers of Tumkur, Karnataka

Girish B.<sup>1,\*</sup>, Sumanth Mallikarjuna Majgi<sup>2</sup>

<sup>1</sup>Assistant Professor, Chamarajanagara Institute of Medical Sciences, Chamarajanagara, Karnataka, <sup>2</sup>Assistant Professor, Dept. of Community Medicine, MMCRI, Mysore

**\*Corresponding Author:**

Email: girish.b24@gmail.com

### Abstract

**Background:** Hypertension is an important public health challenge in both economically developing and developed countries. Hypertension is a Silent Killer, because people who have it are often symptom free or unaware of the disease. The teaching profession is highly stressful occupation due to enhanced psychosocial stress at the work place. The present study was intended to measure the prevalence of hypertension among primary school teachers of Urban Tumkur and also to identify the risk factors for hypertension among the same.

**Material and Methods:** This was a cross sectional study conducted in Maralur area of Tumkur town during July to September, 2013. All the five schools under our Urban field practice area were selected for the study and the sample size was 70 primary school teachers. Blood pressure of all teachers were recorded in sitting position and a pre-tested questionnaire was used to obtain other details.

**Result:** Blood pressure was recorded among 70 teachers in the 5 schools of which 19 (27.14%) were males and 51 (72.86%) were females. 20 teachers (28.57%) were diagnosed with hypertension. 65% of hypertensive teachers have positive family history of hypertension in this study. 15% of teachers with hypertension have smoking habit and 10% of teachers have the habit of alcohol consumption. 25% of hypertensives had less than 6 hours of sleep daily. 65% of hypertensives do not practice yoga and 75% of hypertensives do not practice meditation.

**Conclusion:** Hypertension among the school teachers was 28.57%. Life style modification for prevention and control of hypertension has to be given importance among teachers. Teachers can be used as a medium for spreading these messages to their family, the students and their colleagues.

**Keywords:** Hypertension, Primary school, Risk factors, Teachers

### Introduction

Non Communicable diseases (NCDs) are the leading causes of morbidity and mortality, and also economic burdens throughout the world. As per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 36 million (63%) were due to non communicable diseases (NCDs). The largest proportion of NCD deaths is caused by cardiovascular diseases (48%). In terms of attributable deaths, raised blood pressure is one of the leading behavioral and physiological risk factor to which 13% of global deaths are attributed. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries.<sup>(1)</sup>

Globally, it is estimated that about 62% of cerebrovascular disease and 49% of ischaemic heart disease are attributable to high blood pressure. Hypertension is an important public health challenge in both economically developing and developed countries. Even moderate elevation of blood pressure is associated with a shortened life expectancy. Hypertension is a major risk factor for cardiovascular diseases, stroke and renal diseases. Prevalence of hypertension in India is around 20-30% in urban area and 15-25% in rural area.<sup>(2)</sup>

Hypertension is classified as either primary (essential) hypertension or secondary hypertension. About 90-95% of cases are categorized as "primary

hypertension" which means high blood pressure with no obvious underlying medical cause. The remaining 5-10% of cases (secondary hypertension) are caused by other conditions that affect the kidneys, arteries, heart or endocrine system.<sup>(3)</sup>

Hypertension is a Silent Killer, because people who have it are often symptom free or unaware of the disease. Once identified, elevated blood pressure should be monitored at regular intervals because hypertension is a lifelong disease. But being a asymptomatic disorder prior to the onset of cardiovascular complication, it is associated with a high degree of unawareness among its potential victims.<sup>(3)</sup>

Modifiable risk factors of hypertension are overweight or obesity, lack of physical activity, high salt intake, increased saturated fat intake, use of tobacco, harmful use of alcohol, diabetes mellitus, poor stress management, reduced fruits and vegetable intake. Non-Modifiable risk factors of hypertension are positive family history, increase in age, race, genetic factors.<sup>(2)</sup>

In India, Life style changes, dietary changes, reduced physical activity and increased stress has led to more cases of hypertension. The teaching profession is highly stressful occupation due to enhanced psychosocial stress at the work place. Teacher's work overload has been the subject of intense research.

Hence present study was conducted to determine the presence of hypertension among primary school teachers of Tumkur. Hypertension was one of the strongest modifiable risk factors of cardiovascular diseases. Thereby morbidity and mortality can be minimised and the longevity of the individuals can be prolonged. There are significant health and economic gains attached to early detection, adequate treatment and good control of hypertension.<sup>(4)</sup> With this background the study was intended to measure the prevalence of hypertension among primary school teachers of Urban Tumkur and also to identify the risk factors for hypertension among the same.

### Material and Methods

This was a cross sectional study conducted in Maralur area of Tumkur town during July to September, 2013. There were five primary schools under our Urban field practice area. All these five schools were selected for the study. There were total of 70 teachers in those 5 schools. Hence sample size of our study was 70 primary school teachers. The sampling technique was census method as we took all 70 teachers belonging to these 5 schools. Institutional ethics committee approval was taken. After taking permission of the head of school, each school was visited at least twice till all teachers were covered. All teachers were approached with a pre-tested questionnaire containing details of socio-demography, family history of hypertension, habits, diet, sleep duration, and practice of yoga, meditation, exercise. Blood pressure of all teachers were recorded in sitting position following standard procedure for BP recording<sup>(5)</sup> with the help of interns. Interns were trained to maintain the quality of measurement. Blood pressure level more than 140/90 was considered as

hypertension.<sup>(6)</sup> Later health education session on hypertension was conducted.

**Statistical Analysis:** The data was entered in Microsoft Excel 2010 sheet & was analyzed in EPI-INFO version T.1.2. The results were presented as proportions & depicted in the form of Tables & Charts. Chi-square test was used for analysis of data. p value less than 0.05 was considered statistically significant.

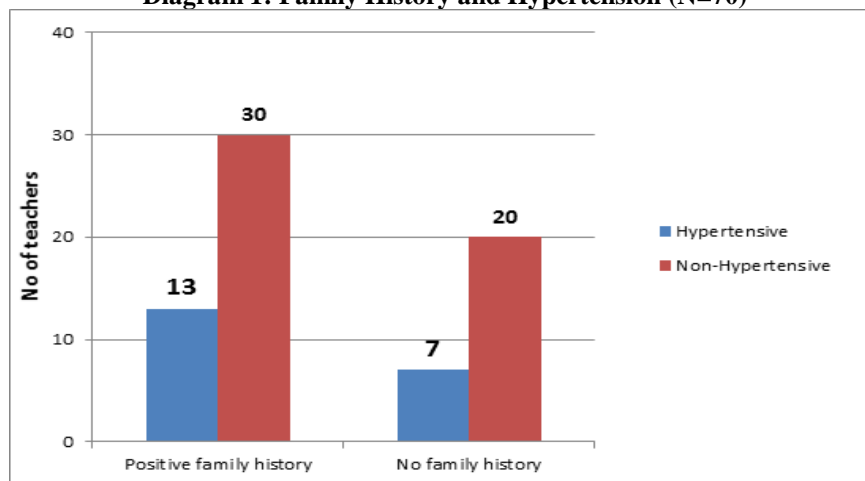
### Results

Blood pressure was recorded among 70 teachers in the 5 schools of which 19 (27.14%) were males and 51 (72.86%) were females. Blood pressure level more than 140/90 was considered as hypertension.<sup>(6)</sup> About 20 teachers (28.57%) were diagnosed with hypertension.

Around 50% teachers were above the age of 30 years. Teacher's age ranges from 22 years to 54 years, with mean  $32.87 \pm 9.19$ . About 30% of teachers with positive family history of hypertension had hypertension. 65% of hypertensive teachers had positive family history of hypertension in this study. This was not statistically significant {Diagram no 1, Chi-square test, p-value: 0.6978}. 15% of teachers with hypertension have smoking habit and 10% of teachers have the habit of alcohol consumption (Table 1).

31% of non-vegetarians had hypertension whereas 25% vegetarians had hypertension. {Diagram 2, Chi-square test, p-value: 0.5892, not-significant}. 25% of hypertensives had less than 6 hours of sleep daily. Reduced sleep is an important contributor of hypertension among teachers {Table 2, Chi-square test, p-value: 0.0082, significant}. 65% of hypertensives do not practice yoga and 75% of hypertensives do not practice meditation (Table 2). 29.6% physically inactive had hypertension. 65% teachers who have hypertension do not practice exercise {diagram 3, Chi-square test, p-value: 0.8145, not-significant}.

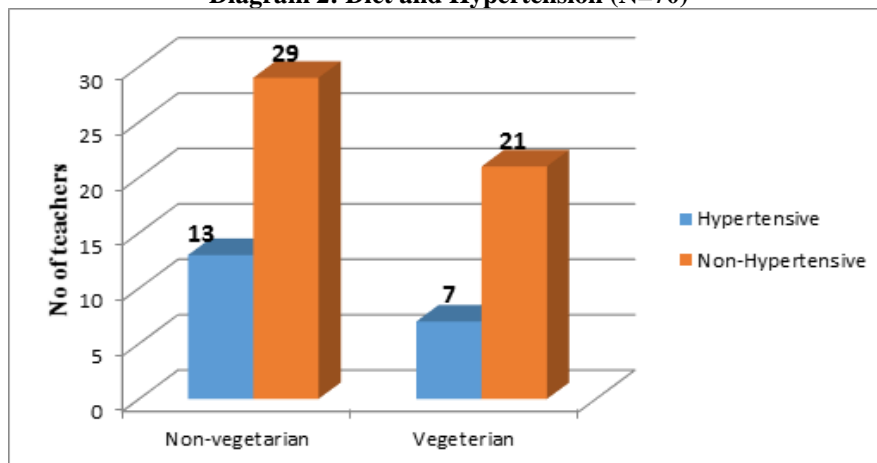
**Diagram 1: Family History and Hypertension (N=70)**



**Table 1: Distribution of Teachers according to smoking & Alcohol consumption (N=70)**

Smoking	Hypertension				Chi-square test	
	Yes		No		p-value	Significant
	Number (N)	Percentage (%)	Number (N)	Percentage (%)		
Yes	3	23	10	77	0.627	Not significant
No	17	30	40	70		
Alcohol consumption						
Yes	2	18.2	9	81.8	0.4061	Not significant
No	18	30.5	41	69.5		

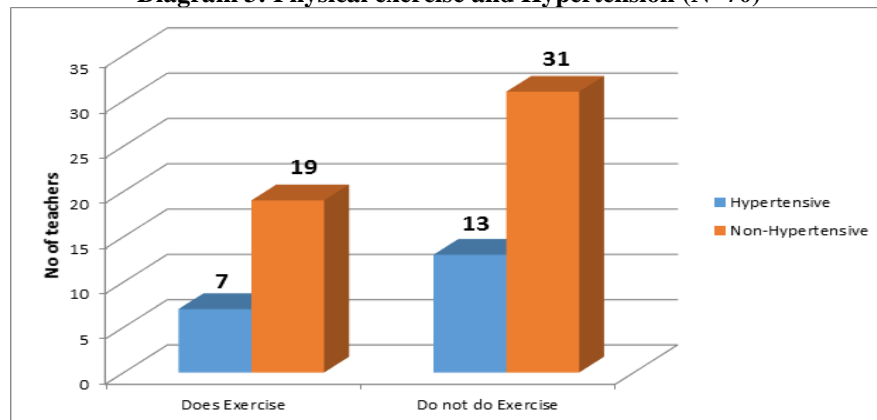
**Diagram 2: Diet and Hypertension (N=70)**



**Table 2: Distribution of Teachers according to Yoga & Meditation practice (N=70)**

Sleep duration	Hypertension				Chi-square test	
	Yes		No		p-value	Significant
	Number (N)	Percentage (%)	Number (N)	Percentage (%)		
< 6 hrs	5	71.4	2	28.6	0.0082	Significant
≥ 6 hrs	15	23.8	48	76.2		
Yoga						
Yes	7	28	18	72	0.9371	Not significant
No	13	28.9	32	71.1		
Meditation						
Yes	5	25	15	75	0.6757	Not significant
No	15	30	35	70		

**Diagram 3: Physical exercise and Hypertension (N=70)**



## Discussion

Hypertension affects one billion people worldwide and it has been estimated that raised blood pressure currently kills nine million people every year. Global efforts to tackle the challenge of non-communicable diseases have gained momentum since the 2011 United Nations Political Declaration on the prevention and control of non-communicable diseases. WHO has provided road map & policy options for member states through NCD Global action plan 2013-2020 and Global monitoring framework on NCDs.<sup>(4)</sup>

Developing countries like India are seeing growing numbers of people who suffer from heart attacks and strokes due to undiagnosed and uncontrolled hypertension. In India, joint action – across sectors is needed – that can effectively address risk factors for raised blood pressure.<sup>(4)</sup>

In the present study 28.57% of school teachers had hypertension. In the study conducted by Nahla K.R. Ibrahim et al,<sup>(7)</sup> the prevalence of hypertension was 25.2% among school teachers of Jeddah, Kingdom of Saudi Arabia, similar to our study. But the prevalence was very low (04%) in the study by Subash Vijaya Kumar et al in 2013 at Warangal, Andhra Pradesh (3% in males and 2% in females).<sup>(8)</sup> The prevalence of hypertension among school teachers was also less (15.1%) in the study by Azza SH Greiw et al conducted in Benghazi, Libya.<sup>(9)</sup> According to study conducted by KSHSRC in BBMP area corporation schools, Bengaluru 40% of teachers were hypertensives, which is very high compared to present study.<sup>(10)</sup>

The prevalence of hypertension was 14.1% among study subjects in the rural area of Delhi by the Jugal Kishore et al study.<sup>(11)</sup> Prevalence of systolic hypertension in rural community was 18.5 % in the VK Agrawal et al study.<sup>(12)</sup> The overall prevalence of hypertension was found to be 8.6% in SS Reddy study.<sup>(13)</sup>

65% of hypertensive teachers have positive family history of hypertension in this study. In Subash Vijaya Kumar et al<sup>(8)</sup> study family history of hypertension was present in 62% of teachers and it was low of 23.3% in the SS Reddy study.<sup>(13)</sup>

Among hypertensive 30.5% teachers had smoking habit in Nahla K R Ibrahim<sup>(7)</sup> study and 22.4% in the SS Reddy study,<sup>(13)</sup> which was very high. 15% of hypertensives have smoking habit in this study. Prevalence of smoking and tobacco use was 16% in VK Agrawal study<sup>(12)</sup> and 17.9% of hypertensives use tobacco in Jugal Kishore study,<sup>(11)</sup> comparable to present study. Proportion of male teachers who were smokers was 54.3% in Azza SH Greiw study.<sup>(9)</sup>

27.1% of hypertensives use alcohol in Kishore J et al study<sup>(11)</sup> & 20.0% in the SS reddy study. Hypertension was significantly higher in those who take alcohol. But in the present study 10% of hypertensives had the habit of alcohol consumption.

Similar to present study prevalence of alcohol intake was 9.4% in the VK Agrawal et al study.<sup>(12)</sup>

Alcohol and smoking were not the significant risk factor of hypertension among teachers. This contrast is probably due to the fact that there were very few alcoholics (11/70) and smokers (13/70) among teachers in the present study.

In this digital era, stress and lack of adequate rest contributes for the increased incidence of hypertension. 25% of hypertensives had less than 6 hours of sleep daily. Reduced sleep is an important contributor of hypertension among teachers.

In the present study 65% hypertensives did no exercise. In other studies it was quite low, in Nahla K.R. Ibrahim et al study<sup>(7)</sup> among hypertensive 26.7% teachers never did any physical exercise, VK Agrawal study<sup>(12)</sup> prevalence of physical inactivity was 18.5% and 15.8% in SS Reddy study.<sup>(13)</sup> 8.8% had non-vegetarian diet in SS reddy study in contrast to present study of 65% of hypertensives.

Hypertension can be prevented. Doing so is far less costly, and far safer for patients, than interventions like cardiac bypass surgery and dialysis that may be needed when hypertension is missed and goes untreated. Raised blood pressure is a serious warning sign that significant lifestyle changes are urgently needed. People need to know why raised blood pressure is dangerous, and how to take steps to control it. They need to know that raised blood pressure and other risk factors such as diabetes often appear together. Increasing public awareness aids early detection, and self-care helps ensure regular intake of medication, healthy behaviours and better control of the hypertension.<sup>(4)</sup>

National population based strategies on diet and physical activity are essential to get over the problem of hypertension. These strategies are most cost-effective and feasible. Teachers can be used as a medium for implementation of these strategies in the younger generation.

## Conclusion

Hypertension among the school teachers was 28.57% which is higher than general population. Reduced sleep, lack of physical exercise and family history of hypertension were important contributors of hypertension among teachers. Positive family history, smoking habit, use of alcohol, non-vegetarian diet were commonly observed among hypertensive teachers. There was lack of practice of yoga, meditation and exercise among teachers with hypertension.

Health education for teachers regarding risk factors, symptoms and complications of hypertension is the need of the hour. Life style modification for prevention and control of hypertension has to be given importance among teachers. Teachers can be used as a medium for spreading these messages to their family, the students and their colleagues.

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**Conflict of Interest:** None

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