

# A Study on Prevalence of Hypertension and Its Relation with Body Mass Index in Rural Population in Tamilnadu\*

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## Abstract

Hypertension is increasing in numbers and going to be a major public health problem in near future. The life expectancy even in developing country has risen to 65 -70 years which is one of major factor for hypertension. The lifestyle also has changed from severe physical activity to minimal physical activity leads to obesity and which causes hypertension.

Objective: 1. To find out the magnitude of hypertension in rural area in middle aged and elderly population  
2. To find out the relationship between hypertension and body mass index.

### Methods:

A house to house survey was made on 2059 population to find out prevalence of hypertension and its relation with body mass index among above 35 years age people.

### Results:

The present study has found out 718 people were above 35 years in the rural population of 2059. Out of 718, the prevalence of hypertension was 28.70%. There was statistically significant relation between BMI and Hypertension

### Discussion:

The Present study shows that prevalence of hypertension in above thirty five years in rural population is 28.67%. Another important observation in this study is the hypertension is higher nearly 58% among the persons who had the BMI more than 30.

### Conclusion:

The study has found out there is significant raise in prevalence of hypertension even in rural area. It is right time that the people should realize to change the life style to reduce the body weight.

**Keywords:** Hypertension, Body Mass Index, Smoking

## Introduction

The developing countries are likely to face an enormous burden due to non-communicable disease in near future as the lifestyle is changed. Of these hypertension is one of the most important treatable causes of mortality and morbidity in middle and old age population. Hypertension is one of the

most important causes of mortality and morbidity in middle and elderly population. Studies in developed countries have reported 60% to 70% of the elderly population has high blood pressure. As a consequence of such prevalence, a substantial proportion of cardio vascular problems in the elderly are attributable to hypertension. Several randomized controlled clinical trials have firmly established that treatment of

hypertension in the elderly significantly reduces cardiovascular morbidity and mortality. With increase in number of elderly in India, hypertension has emerged as an important public health problem. The urban people one or other way seek health care regularly and identify the problems. In rural area they do not have sufficient health care systems and also unaware of certain diseases due to absence of symptoms. The present study is aimed to find out the prevalence of hypertension in rural population and to know the influence of body mass index.

### **Objectives:**

1. To find out the magnitude of hypertension in rural population in above 35 years of age.
2. To find out the relationship between hypertension and body mass index.

### **Materials and Methods**

Study design:	Cross sectional descriptive study
Study population:	Pathirapulyur village
Study population:	2059
Study period:	2 months (Sep-Oct 2006)
Study Tools:	Instruments for BP recording, weight and height. Pre tested questionnaire

A house to house survey was made among the population of 2059 of Pathirapulyur village. The village was selected randomly among the villages of Villupuram taluk in Tamilnadu. Among the village population 742 persons were above 35 years. Out of 742, 718 were included in the study as 24 were migrated or were seriously ill, that is 5% of the population were not included. The information like age, sex, marital status, literacy, occupation, dietary habits, personal habits like smoking, alcohol consumption, betel nut chewing were collected with pre tested questionnaire. Informed consent was obtained regarding blood pressure, height and weight measurements. Blood pressure was recorded by mercury sphygmomanometer. Two reading was made with in 10 minutes and average was taken. Height and weight were measured as per standard criteria. The patient was considered hypertensive if his/her Systolic blood pressure was found to be more than 140 mm of mercury and or Diastolic blood pressure was above 90 mm of mercury. According to BMI the persons were considered to be overweight if their BMI was 25-30 in male and 23-30. in female. If BMI has crossed 30 they were considered to be obese. The data was analysed using software version 10.0

### **Results:**

The study has found out 742 people were above thirty five years in the population of 2059 and 718 were included in the study as 24 people have migrated or seriously ill. Nearly

51.53% were male and 48.46% were female in the study population. Among the study population the prevalence of hypertension was 206 (28.67%). Around 15.18% were male and 13.50% were female among hypertensive. There was no statically difference between male and female. 27.44%, 41.50% and 51.91% were hypertensive in the age group of 45-54, 55-54 and 65-74 respectively Table I. Among non smokers 32.22% were hypertensive and 25.42% were hypertensive among smokers Table II. There was no statistical significant difference between smokers and non smokers. Among betel nut chewers 38.85% were hypertensive and 23.76% were hypertensive among non betel nut chewer Table III. There was statistically significance between betel nut chewer and non betel nut chewers. Nearly 24.73%, 40.94% and 56% were hypertensive among the BMI < 25, 25-30 and > 30 respectively Table IV. There was increasing trend of hypertension observed in increasing of BMI. The hypertension was more in number both in male and in female as BMI increased.

### **Discussion:**

The Present study shows that prevalence of hypertension in above thirty five years in rural population is 28.67%, which is very close to 25.2%, a study conducted by L.Kannan et al<sup>1</sup> but little higher than 19.04%, a study conducted by Kokiwar Prashant R<sup>2</sup>

**This study has found out that the age increases the hypertension also increases; this observation also was noticed by Kokiwar<sup>1</sup> in his study.**

The present study has not found any association between smoking and hypertension which is coincide with the report by Kokiwar Prashant R<sup>2</sup> in his study that there was no association between smoking and hypertension. The present study has observed that higher trend of hypertension with increasing Body Mass Index. This observation also found out by Clarice D Brown et al<sup>3</sup> in his study that hypertension increases where BMI increases. Another important observation in this study is the hypertension is higher nearly 58% among the persons who had the BMI more than 30. This finding is nearly similar to 48% a study conducted by AG Shaper<sup>4</sup> There is a strong correlation between Hypertension and BMI. The present study also has found out statistically significant association between betel nut chewing and increase of hypertension. Chin Hsiao et al<sup>5</sup> also have found out in their study that the betel nut is associated with hypertension.

### **Reference**

1. L.Kannan et al: An Epidemiological study of Hypertension in a rural house hold community. Sri Ramachandra Journal of Medicine June 2009 vol II issue 2

2. Kokiwar Prashant R: Prevalence of hypertension in rural community of central India International Journal of Biological and Medical research 2011-2(4): 950-953
3. Clarice D Brown et al: Body mass index and the prevalence of hypertension and dyslipidemia. Obesity Research. Vol 8 issue 9 pp 605-61
4. Sharper A G et al : Blood pressure in middle aged British men. Journal of Hum Hypertension 1988, 71-80
5. Chin Hsiao: Betel nut chewing is associated with hypertension in Taiwanese Type 2 Diabetic patient. Hypertension Research (2008) 31,417-423

**Table I Distribution of hypertension age wise**

Age in years	Total	Hypertensive	Prevalence rate
35-44	299	44	14.71
45-54	164	45	27.43
55-64	135	56	41.48
65-74	79	41	41.89
>75	41	20	48.78
Total	718	206	

- Chi-square Trend = 64.361
- d.f = 1
- P value <0.001

**Table II Distribution of hypertension in Tobacco Smokers (Male)**

Tobacco	Total	Hypertensive	Prevalence Rate
Non-Smokers	217	70	32.25
Smokers	153	39	25.49
Total	370	109	

Chi-Square Trend = 1.98  
 P value = 0.160

**Table III Distribution of Hypertension Betel nut Chewers**

Beetle Nut	Total	Hypertensive	Prevalence Rate
Non-Chewers	484	115	23.76
Chewers	234	91	38.88
Total	718	206	

Chi-Square = 17.621      d.f = 1  
 P value <0.00

**Table IV Correlation between BMI and Hypertension**

BMI	Total	Hypertensive	Prevalence Rate
< 25	566	140	24.73
25-30	127	52	40.94
>30	25	14	56.00
Total	718	206	

Chi-Square Trend = 22.723  
 P value <0.001