PREVALENCE OF HYPERTENSION AND RELATIONSHIP BETWEEN BMI AND BLOOD PRESSURE AMONG UNDERPRIVILEGED TRIBAL POPULATION IN KANCHEEPURAM DISTRICT

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Abstract

Background: Global epidemic of hypertension is largely uncontrolled. Hypertension is the leading cause of death among non-communicable diseases worldwide. Several criteria was used to assess the prevalence of hypertension among tribal population. Aims and objectives: This study aim to assess the prevalence of hypertension among tribal population Materials and methods: Cross sectional study design, multi stage cluster sampling technique, was used for (Anjur, Kollamedu, Nallambakam, Karanaipudherry tribes) of kancheepuram district, with 1 month duration (November - December 2019), Data on demographic factors (gender, age, educational attainment, marital status, family status, occupation, monthly wage, and religion) were collected from 85 samples homes using structured questioning. Biometric measurements taken were height, weight and blood pressure 2 readings with 10 minutes interval on left arm, average was taken measurement more than 140/90mmHg is considered as hypertension. Result: Tribal prevalence of hypertension was 16.5%, abnormal BMI 45.9%, with the age group 35-49 years (47.1%), 91.8% married, self employed 50.6%, 94.6% of samples with monthly salary 1500-4500, 67.1% nuclear family and mostly among Hindus 98.8%. Conclusion: There is a positive correlation with BMI and hypertension, when BMI increases the systolic and diastolic blood pressure increases and vice versa. Health education and routine check ups should be focused on tribal population.

Keywords: Blood Pressure, Tribal population, biometric measurements.

INTRODUCTION

Because it significantly increases the risk of developing heart, brain, kidney, and other issues as well as being a leading cause of early mortality globally, high blood pressure, often known as hypertension, is a dangerous condition that should be addressed seriously. Around two thirds of the estimated 1.13 billion people who have hypertension live in low- and middle-income countries. One of the World Health Organization's global targets for noncommunicable diseases is to reduce the prevalence of hypertension by 25% by 2025.

Most people with hypertension are unaware of their condition because there may be no symptoms. Hypertension is regarded as a "silent killer." In India, hypertension directly causes 24% of all deaths from coronary heart disease (CHD) and 57% of all fatalities from stroke. The examination of global data for the burden of HTN revealed that in 2005, 20.6% of Indian males and 20.9% of Indian women had the disease. The percentage rates for HTN for Indian men and women could rise to 22.9 and 23.6, respectively, by 2025 [13].

According to recent studies from that country, there is, however, a difference between the prevalence of HTN in India's urban (25%) and rural (10%) populations. according to WHO estimates from 2008, 33.2% of men and 31.7% of women in India had high blood pressure [14]. In an Indian multicenter study on awareness, therapy, and adequate control of HTN, only
approximately 25.6% of treated patients had their blood pressure under control. [15]. Adults with hypertension climbed from 594 million in 1975 to 1.13 billion in 2015, according to a review of recent trends, with the majority of the growth taking place in low- and middle-income countries.

In the United States, about 500,000 deaths in 2018 were caused, in part or entirely, by hypertension. For various age groups, each 20 mmHg rise in blood pressure doubles the risk of cardiovascular disease. The prevalence of high blood pressure varied significantly by income level, averaging over 40% in low-income, lower-middle-income, and upper-middle income nations. The frequency in high-income nations was lower, at 35%. The current study's objective is to assess the prevalence of hypertension among tribal people in four villages in Tamil Nadu, India’s Kancheepuram district. It also looks at the association between demographic characteristics and blood pressure as well as the correlation between systolic and diastolic pressure.

**Population and methods**

In the study, which was conducted from November to December 2019, data was collected house to home in the selected 4 villages in the Kancheepuram district using a cross sectional design. There were three steps in the survey. (1) questionnaires asking about demographic information. (2) Blood pressure, height, and weight measurements two readings separated by ten minutes. (3) a connection between blood pressure and BMI.

**Sampling**

85 people, both male and female, ranging in age from 30 to 80 years, took part in the study. Four villages from the Kancheepuram district—Anjur, Kollamedu, Nallambakam, and Karanaipuducherry tribes—were used as clusters in a multistage sampling procedure. Following the selection of the households, we created a list of the eligible household members. Those who gave their agreement orally had their data collected during the day from those families.

**Data collection and measurement**

An inch tape was used to measure height and weight, and BMI was computed in accordance with WHO guidelines. Sociodemographic data was obtained through interviews conducted by the investigator. The Instruments had been standardised both before and during the investigation.

**Variables**

Age was referred to as the sum of one's completed ages (30–34), (35–49), (50–60), and 60–80, who has completed their elementary education, middle school, high school, and who has no formal schooling. spouse's position as Those who were married, separatists, or widows were classed as having one day work (paying daily earnings), unemployed, privately employed, or self-employed. each month's pay for (1500–4500, 4500–8000). Finally, the religious affiliations of the family include Hindu, Christian, and Muslim. Weight and height (kg/m2) were used to compute the BMI, which was defined as overweight (25–29.9kg/m2) and obesity (>30kg/m2).

**Results**

**Blood Pressure Level**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>BP Level</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal</td>
<td>31</td>
<td>36.5%</td>
</tr>
<tr>
<td>2</td>
<td>Pre-hypertension</td>
<td>40</td>
<td>47.1%</td>
</tr>
</tbody>
</table>
Hypertension Stage 1 | 9 | 10.6%
Hypertension Stage 2 | 5 | 5.9%

### Body Mass Index Level

<table>
<thead>
<tr>
<th>S. No.</th>
<th>BMI Level</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Underweight</td>
<td>14</td>
<td>16.5%</td>
</tr>
<tr>
<td>2</td>
<td>Normal Range</td>
<td>32</td>
<td>37.6%</td>
</tr>
<tr>
<td>3</td>
<td>Overweight</td>
<td>12</td>
<td>14.1%</td>
</tr>
<tr>
<td>4</td>
<td>Obese I</td>
<td>18</td>
<td>21.2%</td>
</tr>
<tr>
<td>5</td>
<td>Obese II</td>
<td>9</td>
<td>10.6%</td>
</tr>
</tbody>
</table>

### Correlation between Body Mass Index and Systolic blood pressure

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>R value</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BMI</td>
<td>85</td>
<td>23.52</td>
<td>5.655</td>
<td>0.394</td>
<td>0.000**</td>
</tr>
<tr>
<td>2</td>
<td>Systolic blood pressure</td>
<td>85</td>
<td>120.95</td>
<td>19.011</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*-Significant at 5% level  **-Significant at 1% level

**Result:**

According to the following table, where the p value is less than 0.01 and highly significant, there is a strong positive link between the respondents' systolic blood pressure and BMI.

Here, the positive connection indicates that, when systolic blood pressure rises, the body mass index rises as well, and vice versa.

### Correlation between Body Mass Index and Diastolic blood pressure

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>R value</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BMI</td>
<td>85</td>
<td>23.52</td>
<td>5.655</td>
<td>0.347</td>
<td>0.001**</td>
</tr>
<tr>
<td>2</td>
<td>Diastolic blood pressure</td>
<td>85</td>
<td>80.65</td>
<td>15.201</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*-Significant at 5% level  **-Significant at 1% level
Result:

The p value in the preceding table is less than 0.01 and is very significant, thus we can conclude that there is a highly significant positive association between the respondents' BMI and diastolic blood pressure.

Here, the positive connection indicates that, when diastolic blood pressure rises, the body mass index rises as well, and vice versa.

Discussion

In India, where 8.6% of the population is made up of tribal people, there is a disparity in the quality of healthcare provided to tribal and non-tribal communities. Tribal people's poor health-seeking behavior further complicates matters. Malnutrition, mental illness, addictions, and communicable and non-communicable diseases all contribute to the quadrupling of the disease burden among tribal people. (8) In India, where 8.6% of the population is made up of tribal people, there is a disparity in health care delivery between the tribal and non-tribal communities.

The disease load of tribal people has quadrupled as a result of malnutrition, mental illness, addictions, and both infectious and non-communicable diseases. Things are further complicated by their poor health-seeking behaviors. (11) The increasing burden of noncommunicable diseases (NCDs) demands a continuous survey of risk factors among different population groups. (10) The Noncommunicable diseases burden in tribal population is as high as in the general population. In India, hypertension is the main non-communicable illness risk factor, with an estimated 200 million people at risk. In India, the prevalence of hypertension varies widely by region and is higher in young people from urban regions (1). There is little information available on the prevalence of NCDs among tribal people. The National Nutrition Monitoring Bureau has researched the prevalence of hypertension in scheduled tribes (STs) in a number of states, but there is a dearth of information on individual tribes (2). The mean prevalence of HTN among tribal people was estimated to be 11.43% (95% confidence interval: 6.72%-17.21%) based on a meta-analysis of a few studies. The significant frequency of hypertension among lean tribal participants (12%) and the undernourished (approximately 9%) makes undernutrition remarkable.

An overweight or obese person's risk of acquiring hypertension was shown to be 1.7 times higher in research among tribes in Kerala. Only 8% of individuals (n = 129) were undergoing regular therapy, and only 10% of adults (n = 164) were aware of their hypertension status. (5)

Despite the paucity of data, there is a significant burden of NCDs in northeastern India.

There is a high prevalence of behavioral risk factors for NCDs and hypertension among rural tribal people in Nagaland. Smokeless tobacco was often used by both men (139/236, 58.9%) and women (117/236, 49.6%). (6) There are numerous NCD risk factors in the Kinnaur tribal region.

The study participants' knowledge, treatment, and management of their blood pressure and blood glucose levels were found to be less than optimum.

In this tribal district of HP, basic health care services must be enhanced together with community-based initiatives to raise knowledge of and control over NCD risk factors. (7) The majority of the behavioral and biological risk factors for NCDs were rather high among the native population of rural Siliguri, with the exception of physical inactivity. (10) NCDs are the leading cause of adult death in a particular community in rural Birbhum, India. Circulatory system problems were responsible for nearly 30% of all deaths (1176 deaths, or 50.7% of all deaths), whereas cerebrovascular illnesses and ischemic heart disease were responsible for 24.2% and 3.9% of deaths, respectively.

One hundred and one deaths, or 50.7% of all deaths, were caused by non-communicable diseases (NCDs). In terms of demographics, Gujar-Bakarwals predominate in the hilly regions of the Kashmir Valley. Their housing, sanitation, and healthcare facilities are of very poor quality when compared to those of other communities. Numerous behaviors, such as smoking and skipping meals, are risk factors. (12)
Conclusion

Due to the high incidence of hypertension among tribes, more health services are needed to provide for this population, and preventative measures are urgently needed. This finding suggests there are a huge number of unrecognized cases in that area.

REFERENCES


