

***Prevalence of Non-Communicable Disease (Hypertension and diabetes) in Reproductive Age Women in India***

***By***

***Payal Kalra***

***Dissertation submitted in partial fulfilment of the requirements of the degree  
MBA Hospital and Health Management***

***Academic year, 2021-2023***

**The IIHMR University, Jaipur**



**1, Prabhu Dayal Marg, Sanganer, Airport**

**Jaipur 302029, Rajasthan**

**Ph.: 0141 3924700, Fax: 3924738**

**Website: [www.iihmr.edu.in](http://www.iihmr.edu.in)**

**1<sup>st</sup> June, 2023**

**CERTIFICATE**

**This is to certify that Payal Kalra has successfully completed her Internship Program with us from 16<sup>th</sup> March 2023 to 1<sup>st</sup> June 2023.**

**During the Internship, she was part of the Jhpiego team and worked on the project “Prevalence of Non communicable disease (Hypertension and diabetes) in reproductive age women in India”.**

**We take this opportunity to wish her all the best in her future endeavors.**

**Thanking you,**

**Yours sincerely,**

**Date:**

**Place:**

**CERTIFICATE BY SCHOLAR**

**This is to certify that the dissertation titled**

**“Study on Prevalence of Non communicable disease (Hypertension and diabetes) in reproductive age women in India Submitted by Payal Kalra, Enrolment No.1346 under the supervision of Dr. Kajal Sitlani, for award of MBA in Hospital and Health Management of the IIHMR University carried out during the period of March 2023 to June 2023 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.**

**Signature**

## **ABSTRACT**

### **Topic:**

Prevalence of non-communicable disease (Hypertension and diabetes) in reproductive age women in India.

### **Background:**

#### **Objectives of the study**

- Prevalence of non-communicable disease (Hypertension and diabetes) in women of reproductive age group (15-49) in India.
- The factors responsible for prevalence of hypertension and diabetes in reproductive age group.

#### **Research Question**

- What is the prevalence of non-communicable disease (Hypertension and diabetes) in women of reproductive age group (15-49) in India.

#### **Study population and sample size**

NFHS5 data was used to collect the data of the study population. The study population was selected depending upon the inclusion and exclusion criteria.

#### **Research design and setting**

Secondary research was done using data from NFHS 5 to analyze the prevalence of hypertension and diabetes in women of reproductive age in India.

#### **Tools used:**

Data was collected from NFHS 5 and was analyzed using Microsoft excel.

## **CONCLUSION**

From the overall study it was found put that the prevalence of hypertension is more compared to the prevalence of diabetes among the women of the reproductive age group

### **Acknowledgement**

At the outset of my project report, I'd want to express my sincere gratitude to all the individuals who have assisted me with this project report. I would not have made any progress on the assignment without their strong leadership, participation, and consolation.

It is my radiant sentiment to place on record my best regards, and deepest sense of gratitude to Mr. Vinod Tejwani, Dean- Placements & Alumni Relations IIHMR University, and Ms. Kajal Sitlani, Associate Professor, my Mentor at IIHMR University.

Finally, I'd like to express my gratitude to every companion who directly or indirectly assisted me in completing this assignment. Any omission from this brief affirmation does not imply a lack of gratitude.

### Table of content

| <b>Sr No</b> | <b>Contents</b>           | <b>Page No.</b> |
|--------------|---------------------------|-----------------|
| <b>1</b>     | <b>Introduction</b>       | <b>7-9</b>      |
| <b>2</b>     | <b>Literature Review</b>  | <b>10-11</b>    |
| <b>3</b>     | <b>Research Questions</b> | <b>12</b>       |
| <b>4</b>     | <b>Objectives</b>         | <b>12</b>       |
| <b>5</b>     | <b>Methodology</b>        | <b>12</b>       |
| <b>6</b>     | <b>Results</b>            | <b>13-19</b>    |
| <b>8</b>     | <b>Conclusion</b>         | <b>20</b>       |

## INTRODUCTION

Communicable and non-communicable disease around the globe.

The burden of communicable diseases and non-communicable diseases is doubled around the world. Both developed and developing countries are facing this problem. However, low income and middle-income countries are more vulnerable and exposed to communicable and non-communicable disease. Vulnerability is due to various factors like geography of the countries, socio-economic status etc.

As per WHO report 2002, approximately 60% of the 56.5 million in the world reported death out which approximately 46% of the world death was because of the chronic non communicable diseases.

As per 2020 report, Communicable diseases contributed 23.8% of the total global burden of the disease. However, non-communicable disease has greater contribution of 58.2% of global burden of diseases with leading cause being cardiovascular disease followed by cancer (17.6%) and diabetes (3.7%).

Transition of communicable disease to non-communicable disease.

The shift from communicable disease to non-communicable diseases (NCDs) is one of the key public health concerns of the twenty-first century. Globally, the prevalence of communicable illnesses (CDs) has decreased over the past few decades, whilst the prevalence of non-communicable diseases (NCDs) has continuously climbed. This is brought about by several things, such as more access to clean water, better sanitation, better nutrition, higher-quality healthcare, and healthier lifestyle choices including increased physical activity and quitting smoking. These NCDs have a significant financial cost. In the world, NCDs account for 60% of lost disability-adjusted life years and 72% of all fatalities. Additionally, they are largely responsible for the cost of healthcare globally. Given the high rates of morbidity and mortality they produce, these diseases also have a substantial impact on social and economic growth.

More than 70% of all fatalities worldwide are caused by non-communicable diseases (NCDs), which are also the primary cause of disability. With 16 million of those fatalities occurring before the age of 70, NCDs are responsible for an estimated 40 million annual deaths and disproportionately affect low- and middle-income nations.

Diabetes and hypertension are global health problems. It is estimated by WHO (World health organisation) that in 2019 there will be 463 million cases of diabetes with about only 50% cases being diagnosed. It is predicted that the global population will reach up to 700 million with about 1.5 population that is the adult population will be suffering from serious health conditions like hypertension. Hypertension and diabetes will burden the low- or middle-income countries more as compared to developed countries.

Diabetes and hypertension have high financial tolls. As per report to take care of those who have these conditions, annually more than \$ 760 billion is spent. To lessen the burden of these condition nations should spread awareness, policies should be made and more effective method should be adopted.

#### Burden of hypertension and diabetes in India

As burden of diabetes and hypertension is increasing around the globe India is no longer behind in the race. As per National Health profile 2019, 7.3% cases of diabetes were reported and that of hypertension were 24.8%. In deaths caused by cardiovascular condition hypertension is one of the main contributing factors. Due to busy and unhealthy lifestyle diabetes is on rise by 2025 9.4% cases of diabetes are predicted by 2025.

#### Burden of hypertension and diabetes in women of age (15-49)

Conditions like hypertension and diabetes are very difficult to manage during the period of pregnancy. These diseases can raise the risk of premature birth or stillbirth and cause difficulties during pregnancy. Preeclampsia can be brought on by hypertension during pregnancy and is characterised by high blood pressure, and the presence of protein in the urine. Preeclampsia-eclampsia syndrome is a more severe illness that might result in convulsions, a coma, or even death. Preeclampsia, birth abnormalities, macrosomia (larger-than-normal babies), and other health issues for the unborn child, including low blood sugar in the new born, breathing issues, and an increased chance of obesity and Type 2 diabetes later in life, are all made more likely by diabetes during pregnancy.

#### Reasons for hypertension and diabetes in pregnant women in India

Women who reside in rural, poor regions in India are more likely to experience hypertension during pregnancy. High levels of poverty resulting in malnutrition or unhealthy lifestyles brought on by overwork, as well as a lack of health education among pregnant women, are all potential causes of hypertension during pregnancy.

A pregnant woman's nutrition, lack of exercise, and inadequate prenatal care are all strongly associated with diabetes during pregnancy, which is also widespread in India. Poor diet, inactivity, a history of diabetes in the family, and a lack of access to healthcare are all potential contributors to diabetes during pregnancy. Diabetes can also develop during pregnancy because of obesity, stress, substance abuse, and certain medications.

Around the globe, diabetes has increased six the times, jumping from 30 million in 1985 to around 180 million cases in 2015. If the situations remain the same, it is excepted reach to reach 370 million in 2030. Diabetes

which was a rich people's disease is no longer the same. It is currently sweeping the entire world particular increase in the low- and middle-income countries.

By 2025, it is expected that 80% of the new diabetes cases will be from the developing countries. Younger age group is affected by diabetes in developing or low-income countries as compared to people living in developed countries. Around 50% of the population in the developing countries ignore or are unaware of the fact that they have diabetes which leads to irreversible or unmanageable complications and morbidity. Every year around the globe about 6 million people are tested with diabetes. The prevalence reaches about 12-20% in many countries such as Middle east and Asia.

## REVIEW OF LITERATURE

| Author                                                                         | Title                                                                                                                                                                           | Overview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tabassum Firoz, Beth Pineles, Nishika Navrange & Doris Chou.                   | Non- communicable disease and maternal health: a scoping review.                                                                                                                | Globally, non-communicable diseases have been a large reason for death and disability, especially in women of reproductive age. Still non-communicable diseases and their time frame are not well defined. As NCDs significantly contribute in the disability and death in maternity period it is very important to spread awareness about NCDs and its consequences on maternal health and its affect on the off springs. Program and facilities should be included that helps in early diagnosis of NCDs in r |
| Jyotsna Negi, Hari Sankar, Arun B. Nair &Devaki Nambiar                        | Intersecting sex related inequalities in self-reported testing for and prevalence of non-communicable disease risk factors in Kerala.                                           | A random sample survey was done including 2982 men and 3398 women of age group of 30 years. A descriptive analysis was done using wealth and education index to check for sex related inequalities in reporting for non-communicable diseases in Kerala.                                                                                                                                                                                                                                                        |
| Smitha Chandrashekar Appa , Sumit Malhotra , Chandan Nagendraswamy &Arun Gopi. | Hypertension as a silent epidemic among late adolescent girls, its associated demographic factors and pregnancy outcomes: A report from national family health Survey (NFHS) IV | It is considered that hypertension only occurs at later stages of life. Adolescent hypertension has not yet drawn the public health attention.<br><br>In this study a secondary analysis was done with a population size of 699, 686 women. A questionnaire was prepared specifically for adolescent female. 1,24,878 adolescent girls were included for the analysis.                                                                                                                                          |

|  |  |                                                                                                                                                                                                                                                                                                                                 |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p>Demographic data was collected such as (Age, martial status, socioeconomic status), BP, BMI was measured and analysed.</p> <p>The result showed 16.4% of prevalence of hypertension in adolescent women. As per study education and wealth index had a major co-relation with prevalence of hypertension in these women.</p> |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **RESEARCH DESIGN AND METHODOLOGY.**

Research methodology describes the participants of the study by including information about their demographics which includes information about their age, education, income, ethnicity etc. and its co-relationship with the current study.

The section also describes the tools or the instruments that are used to measure various constructs in this study.

### **Objectives of the study**

- Prevalence of non-communicable disease (Hypertension and diabetes) in women of reproductive age group (15-49) in India.
- The factors responsible for prevalence of hypertension and diabetes in reproductive age group.

### **Research Question**

- What is the prevalence of non-communicable disease (Hypertension and diabetes) in women of reproductive age group (15-49) in India.

### **Study population and sample size**

NFHS5 data was used to collect the data of the study population. The study population was selected depending upon the inclusion and exclusion criteria.

### **Inclusion criteria**

- Women in the reproduction age group i.e between 15-49 are included in the study.

### **Exclusive criteria**

- Women above or below the reproductive age group are excluded from the study.
- Male are excluded from the current study.

### **Research design and setting**

Secondary research was done using data from NFHS 5 to analyze the prevalence of hypertension and diabetes in women of reproductive age in India.

### **Tools used:**

Data was collected from NFHS 5 and was analyzed using Microsoft excel.

## RESULT

The Data Regarding the Prevalence of Hypertension and Diabetes among the women of reproductive age was taken from the NFHS 5.

The data was taken in segregated from and it was collected in a manner that this division can help to find out the rate of prevalence of NCD depending upon age group, Residence, Schooling, Religion of Household, Caste/Tribe of the household head, Nutritional Status, and wealth Quintile.

### HYPERTENSION

The data was collected on the prevalence of hypertension among the women of reproductive age was distributed as Pre-hypertensive, mild hypertension, moderate hypertension, and severe hypertension and an overall mean of the data was calculated to see the overall prevalence of hypertension.

On an average 139,896-192486 women of reproductive age participated in this study. As data collected by NFHS 5.

The age adjusted overall prevalence of hypertension among the women of reproductive age was found out 10.52% the further distribution shows 38.98% women were pre hypertensive and women with mild hypertension, moderate hypertension, and severe hypertension were found at 6.86%, 1.34%, and 0.58% respectively, overall, among all age group.

The rate of prevalence of hypertension among the women of reproductive age in urban and rural region were compared and found at 23.6% and 20.2% respectively from the total population taken 306367 and 672375 respectively. Which shows the prevalence of hypertension more in urban population compared to rural.

The rate of prevalence distinguished by years of schooling was also found out the overall prevalence of hypertension was seen at 21.74% while the overall prevalence of pre hypertensive women was at 38.57% and women with mild hypertension, moderate hypertension, and severe hypertension were found at 12.84%, 3.31%, and 1.51% respectively, overall, among all group of years of schooling.

The distribution of prevalence of hypertension among the religious group was also calculated and it was found out that overall, in all religion the prevalence was noted as 23.74% while pre hypertensive women were seen at 39.81% which is quite higher and women with mild hypertension, moderate hypertension, and severe hypertension were found at 13.7%, 10.71%, and 1.92% respectively among all religious group.

The distribution of prevalence of hypertension among the caste/ tribe was also calculated and it was found out that overall, in all caste and tribe the prevalence was noted as 21.38% while pre hypertensive women were seen at 38.44% which is quite higher and women with mild hypertension, moderate hypertension, and severe hypertension were found at 12.4%, 3.72%, and 1.68% respectively among all caste/tribe group.

The distribution of prevalence of hypertension among the women of reproductive age group was also calculated and it was found out that the overall prevalence of all the BMI group was 21.56% and 38.82% were found to be pre hypertensive and the prevalence of mild hypertension, moderate hypertension, and severe hypertension was also calculated and was found at 12.92%, 3.54% and 1.52% respectively among all the BMI groups.

The prevalence of Hypertension among the groups distributed on wealth quintile was also calculated in which the overall prevalence of hypertension was found at 21.22% while the prevalence of pre hypertensive women was seen at 38.5% a distribution of mild hypertension, moderate hypertension, and severe hypertension was also calculated and was found at 12.44%, 3.55% and 1.64% respectively among all the wealth groups.

## DIABETES

The data was collected on the prevalence of diabetes among the women of reproductive age was distributed as  $\leq 140\text{mg/dl}$ , which was considered normal,  $140\text{-}160\text{mg/dl}$  which was considered high and  $>160\text{mg/dl}$  which was considered as very high diabetic and an overall mean of the data was calculated to see the overall prevalence of diabetes.

The age adjusted overall prevalence of Diabetes among the women of reproductive age was found out at 93.18% were normal while 3.86% were at high blood sugar level and 2.92% were at a very high level of blood sugar.

The rate of prevalence of diabetes among the women of reproductive age in urban and rural region were compared and it was found out that in urban area 85.4%% were normal compared to 88.7% in Rural while 6.7% were % were at high blood sugar level in urban compared to 5.9% in rural and 8.0%% were at a very high level of blood sugar in urban areas compare to 5.5% in rural.

The rate of prevalence distinguished by years of schooling was also found out to see prevalence of diabetes and it was found out that among all the groups of years of schooling 86.97% were normal while 5.95% were at high blood sugar levels and 7.08% were at a very high level of blood sugar.

The distribution of prevalence of Diabetes among the religious group was also calculated and it was found out that overall, in all religion the prevalence was seen as 87.2% had normal blood sugar level while 6.32% were at high blood sugar levels and 6.47% were at a very high level of blood sugar.

The distribution of prevalence of Diabetes among the caste/tribe group was also calculated and it was found out that overall, in all caste/tribe the prevalence was seen as 87.82% had normal blood sugar level while 6.2% were at high blood sugar levels and 5.98% were at a very high level of blood sugar.

The distribution of prevalence of Diabetes among the women of reproductive age group was also calculated and it was found out that the overall prevalence of all the BMI group 86.72% were seen at normal blood sugar level while 6.3% were at high blood sugar levels and 6.78% were at a very high level of blood sugar.

The prevalence of Diabetes among the groups distributed on wealth quintile was also calculated in which the overall prevalence of diabetes and it was found that an overall mean of the prevalence of diabetes among all wealth quantile was seen as 87.66% were seen at normal blood sugar level while 6.1% were at high blood sugar levels and 6.22% were at a very high level of blood sugar.

**Table of calculations**

| <b>Age Group</b> | <b>Prevalence of Hypertension</b> | <b>Pre hypertensive</b> | <b>Hypertensive Mildly elevated</b> | <b>Hypertensive Moderately elevated</b> | <b>Hypertensive Severely elevated</b> |
|------------------|-----------------------------------|-------------------------|-------------------------------------|-----------------------------------------|---------------------------------------|
| 15-19            | 3.3                               | 22.9                    | 2.0                                 | 0.2                                     | 0.2                                   |
| 20-24            | 4.7                               | 28.7                    | 3.0                                 | 0.3                                     | 0.2                                   |
| 25-29            | 6.7                               | 34.5                    | 4.4                                 | 0.6                                     | 0.3                                   |
| 30-39            | 12.9                              | 42.4                    | 8.9                                 | 1.6                                     | 0.7                                   |
| 40-49            | 25.0                              | 46.4                    | 16.0                                | 4.0                                     | 1.5                                   |
| <b>Mean (X)</b>  | <b>10.52</b>                      | <b>34.98</b>            | <b>6.86</b>                         | <b>1.34</b>                             | <b>0.58</b>                           |

| <b>Residence</b> | <b>Prevalence of Hypertension</b> | <b>Pre hypertensive</b> | <b>Hypertensive Mildly elevated</b> | <b>Hypertensive Moderately elevated</b> | <b>Hypertensive Severely elevated</b> |
|------------------|-----------------------------------|-------------------------|-------------------------------------|-----------------------------------------|---------------------------------------|
| Urban            | 23.6                              | 41.7                    | 39.5                                | 13.6                                    | 1.6                                   |
| Rural            | 20.2                              | 44.9                    | 38                                  | 11.9                                    | 1.7                                   |

| <b>Schooling</b>          | <b>Prevalence of Hypertension</b> | <b>Pre hypertensive</b> | <b>Hypertensive Mildly elevated</b> | <b>Hypertensive Moderately elevated</b> | <b>Hypertensive Severely elevated</b> |
|---------------------------|-----------------------------------|-------------------------|-------------------------------------|-----------------------------------------|---------------------------------------|
| No schooling              | 31.0                              | 42.5                    | 17.9                                | 5.9                                     | 2.9                                   |
| <5 years complete         | 28.7                              | 41.2                    | 16.2                                | 4.8                                     | 2.1                                   |
| 5-7 years complete        | 22.2                              | 39.9                    | 13.0                                | 3.5                                     | 1.5                                   |
| 8-9 years complete        | 14.2                              | 34.9                    | 8.5                                 | 2.0                                     | 0.8                                   |
| 10-11 years complete      | 14.2                              | 34.1                    | 8.4                                 | 1.9                                     | 0.8                                   |
| 12 or more years complete | 11.1                              | 35.1                    | 6.9                                 | 1.3                                     | 0.5                                   |

|                 |              |              |              |             |             |
|-----------------|--------------|--------------|--------------|-------------|-------------|
| Don't know.     | 30.8         | 42.2         | 18.9         | 3.8         | 2.0         |
| <b>Mean (X)</b> | <b>21.74</b> | <b>38.57</b> | <b>12.82</b> | <b>3.31</b> | <b>1.51</b> |

| <b>Religion of household head</b> | <b>Prevalence of Hypertension</b> | <b>Pre hypertensive</b> | <b>Hypertensive Mildly elevated</b> | <b>Hypertensive Moderately elevated</b> | <b>Hypertensive Severely elevated</b> |
|-----------------------------------|-----------------------------------|-------------------------|-------------------------------------|-----------------------------------------|---------------------------------------|
| Hindu                             | 21.0                              | 38.4                    | 12.3                                | 3.5                                     | 1.6                                   |
| Muslim                            | 20.7                              | 39.3                    | 12.0                                | 3.3                                     | 1.5                                   |
| Christian                         | 26.3                              | 36.8                    | 13.8                                | 4.3                                     | 2.2                                   |
| Sikh                              | 30.8                              | 39.9                    | 18.2                                | 5.4                                     | 2.9                                   |
| Buddhist/ Neo-Buddhist            | 22.9                              | 38.1                    | 13.4                                | 3.9                                     | 1.9                                   |
| Jain                              | 24.7                              | 44.3                    | 13.8                                | 2.8                                     | 1.4                                   |
| Others                            | 19.8                              | 41.9                    | 12.4                                | 3.2                                     | 2.0                                   |
| <b>Mean (X)</b>                   | <b>23.74</b>                      | <b>39.81</b>            | <b>13.7</b>                         | <b>10.71</b>                            | <b>1.92</b>                           |

| <b>Caste/tribe of household head</b> | <b>Prevalence of Hypertension</b> | <b>Pre hypertensive</b> | <b>Hypertensive Mildly elevated</b> | <b>Hypertensive Moderately elevated</b> | <b>Hypertensive Severely elevated</b> |
|--------------------------------------|-----------------------------------|-------------------------|-------------------------------------|-----------------------------------------|---------------------------------------|
| Scheduled caste                      | 19.5                              | 37.3                    | 11.6                                | 3.4                                     | 1.6                                   |
| Scheduled tribe                      | 19.8                              | 40.5                    | 12.3                                | 3.5                                     | 1.7                                   |
| Other backward class                 | 21.1                              | 37.9                    | 12.3                                | 3.5                                     | 1.6                                   |
| Other                                | 24.0                              | 39.9                    | 13.6                                | 3.8                                     | 1.7                                   |
| Don't know                           | 22.5                              | 36.6                    | 12.2                                | 4.4                                     | 1.8                                   |
| <b>Mean (X)</b>                      | <b>21.38</b>                      | <b>38.44</b>            | <b>12.4</b>                         | <b>3.72</b>                             | <b>1.68</b>                           |

| <b>Nutritional status</b>  | <b>Prevalence of Hypertension</b> | <b>Pre hypertensive</b> | <b>Hypertensive Mildly elevated</b> | <b>Hypertensive Moderately elevated</b> | <b>Hypertensive Severely elevated</b> |
|----------------------------|-----------------------------------|-------------------------|-------------------------------------|-----------------------------------------|---------------------------------------|
| Thin (BMI <18.5)           | 5.9                               | 25.2                    | 3.7                                 | 0.6                                     | 0.3                                   |
| Normal (BMI 18.5-24.9)     | 9.5                               | 37.1                    | 6.3                                 | 1.2                                     | 0.5                                   |
| Overweight (BMI 25.0-29.9) | 19.3                              | 43.5                    | 12.9                                | 2.8                                     | 1.1                                   |
| Obese (BMI ≥30.0)          | 28.0                              | 44.9                    | 17.4                                | 4.6                                     | 1.6                                   |
| Respondent not measured    | 45.1                              | 43.4                    | 24.3                                | 8.5                                     | 4.1                                   |
| <b>Mean (X)</b>            | <b>21.56</b>                      | <b>38.82</b>            | <b>12.92</b>                        | <b>3.54</b>                             | <b>1.52</b>                           |

| <b>Wealth quintile</b> | <b>Prevalence of Hypertension</b> | <b>Pre hypertensive</b> | <b>Hypertensive Mildly elevated</b> | <b>Hypertensive Moderately elevated</b> | <b>Hypertensive Severely elevated</b> |
|------------------------|-----------------------------------|-------------------------|-------------------------------------|-----------------------------------------|---------------------------------------|
| Lowest                 | 18.5                              | 37.6                    | 11.1                                | 3.4                                     | 1.8                                   |
| Second                 | 19.1                              | 37.2                    | 11.4                                | 3.4                                     | 1.6                                   |
| Middle                 | 21.0                              | 37.8                    | 12.3                                | 3.7                                     | 1.7                                   |
| Fourth                 | 22.6                              | 38.8                    | 13.2                                | 3.7                                     | 1.5                                   |
| Highest                | 24.9                              | 41.1                    | 14.2                                | 3.7                                     | 1.6                                   |
| <b>Mean (X)</b>        | <b>21.22</b>                      | <b>38.5</b>             | <b>12.44</b>                        | <b>3.58</b>                             | <b>1.64</b>                           |

## DIABETES

| <b>Age group</b> | <b>≤ 140 mg/dl (Normal)</b> | <b>141-160 mg/dl (High)</b> | <b>&gt;160 mg/dl (Very High)</b> |
|------------------|-----------------------------|-----------------------------|----------------------------------|
| 15-19            | 97.4                        | 1.8                         | 0.7                              |
| 20-24            | 96.7                        | 2.3                         | 1.0                              |
| 25-29            | 95.3                        | 3.1                         | 1.6                              |
| 30-39            | 91.6                        | 4.8                         | 3.5                              |
| 40-49            | 84.9                        | 7.3                         | 7.8                              |
| <b>Mean (X)</b>  | <b>93.18</b>                | <b>3.86</b>                 | <b>2.92</b>                      |

| Age group | ≤ 140 mg/dl<br>(Normal) | 141-160 mg/dl<br>(High) | >160 mg/dl<br>(Very High) |
|-----------|-------------------------|-------------------------|---------------------------|
| Urban     | 85.4                    | 6.7                     | 8.0                       |
| Rural     | 88.7                    | 5.9                     | 5.5                       |

| Schooling                    | ≤ 140 mg/dl<br>(Normal) | 141-160 mg/dl<br>(High) | >160 mg/dl<br>(Very High) | Number of<br>women |
|------------------------------|-------------------------|-------------------------|---------------------------|--------------------|
| No schooling                 | 83.9                    | 8.0                     | 8.2                       | 314,922            |
| <5 years<br>complete         | 82.6                    | 8.2                     | 9.2                       | 66,666             |
| 5-7 years<br>complete        | 86.3                    | 6.4                     | 7.3                       | 125,857            |
| 8-9 years<br>complete        | 90.7                    | 4.7                     | 4.6                       | 140,033            |
| 10-11 years<br>complete      | 90.6                    | 4.6                     | 4.8                       | 120,257            |
| 12 or more<br>years complete | 92.4                    | 4.1                     | 3.5                       | 187,959            |
| Don't know.                  | 82.3                    | 5.7                     | 12.0                      | 378                |
| <b>Mean (X)</b>              | <b>86.97</b>            | <b>5.95</b>             | <b>7.08</b>               |                    |

| Religion of<br>household<br>head | ≤ 140 mg/dl<br>(Normal) | 141-160 mg/dl<br>(High) | >160 mg/dl<br>(Very High) |
|----------------------------------|-------------------------|-------------------------|---------------------------|
| Hindu                            | 87.8                    | 6.1                     | 6.1                       |
| Muslim                           | 87.4                    | 6.0                     | 6.5                       |
| Christian                        | 83.0                    | 7.1                     | 9.9                       |
| Sikh                             | 86.4                    | 5.8                     | 7.8                       |
| Buddhist/<br>Neo-Buddhist        | 90.8                    | 5.2                     | 4.0                       |
| Jain                             | 83.7                    | 8.6                     | 7.8                       |
| Others                           | 91.3                    | 5.5                     | 3.2                       |
| <b>Mean (X)</b>                  | <b>87.2</b>             | <b>6.32</b>             | <b>6.47</b>               |

| Caste/tribe of<br>household<br>head | ≤ 140 mg/dl<br>(Normal) | 141-160 mg/dl<br>(High) | >160 mg/dl<br>(Very High) |
|-------------------------------------|-------------------------|-------------------------|---------------------------|
|-------------------------------------|-------------------------|-------------------------|---------------------------|

|                      |              |            |             |
|----------------------|--------------|------------|-------------|
| Scheduled caste      | 88.6         | 5.8        | 5.6         |
| Scheduled tribe      | 90.7         | 5.3        | 4.0         |
| Other backward class | 87.4         | 6.1        | 6.5         |
| Other                | 85.8         | 6.8        | 7.4         |
| Don't know           | 86.6         | 7.0        | 6.4         |
| <b>Mean (X)</b>      | <b>87.82</b> | <b>6.2</b> | <b>5.98</b> |

| <b>Nutritional status</b>  | <b>≤ 140 mg/dl (Normal)</b> | <b>141-160 mg/dl (High)</b> | <b>&gt;160 mg/dl (Very High)</b> |
|----------------------------|-----------------------------|-----------------------------|----------------------------------|
| Thin (BMI <18.5)           | 96.0                        | 2.7                         | 1.3                              |
| Normal (BMI 18.5-24.9)     | 94.0                        | 3.7                         | 2.2                              |
| Overweight (BMI 25.0-29.9) | 87.8                        | 6.0                         | 6.2                              |
| Obese (BMI ≥30.0)          | 81.1                        | 8.0                         | 10.3                             |
| Respondent not measured    | 75.0                        | 11.1                        | 13.9                             |
| <b>Mean (X)</b>            | <b>86.78</b>                | <b>6.3</b>                  | <b>6.78</b>                      |

| <b>Wealth quintile</b> | <b>≤ 140 mg/dl (Normal)</b> | <b>141-160 mg/dl (High)</b> | <b>&gt;160 mg/dl (Very High)</b> |
|------------------------|-----------------------------|-----------------------------|----------------------------------|
| Lowest                 | 90.0                        | 5.8                         | 4.2                              |
| Second                 | 89.4                        | 5.7                         | 4.9                              |
| Middle                 | 87.9                        | 5.9                         | 6.1                              |
| Fourth                 | 86.2                        | 6.3                         | 7.5                              |
| Highest                | 84.8                        | 6.8                         | 8.4                              |
| <b>Mean (X)</b>        | <b>87.66</b>                | <b>6.1</b>                  | <b>6.22</b>                      |

## **CONCLUSION**

From the overall study it was found put that the prevalence of hypertension is more compared to the prevalence of diabetes among the women of the reproductive age group. This result shows also shows the high prevalence of pre hypertensive patients which are at a high risk of hypertension. And such a high rate of prevalence of hypertension can also lead to occurrence of diabetes and other cardiovascular diseases. A high-rate prevalence of such NCD among the women of reproductive age can also lead to other reproductive conditions which can take them at a higher risk of decreasing reproduction capabilities.

## Reference

- Chandrashekarappa, S., Malhotra, S., Nagendraswamy, C., Gopi, A., Murthy, M. N., Upadhyay, K., & Goel, S. (2022). Hypertension as a silent epidemic among late adolescent girls, its associated demographic factors, and pregnancy outcome: A report from national family health survey (NFHS) IV data. *Journal of Family Medicine and Primary Care*, 11(9), 5849–5856. [https://doi.org/10.4103/jfmipc.jfmipc\\_169\\_22](https://doi.org/10.4103/jfmipc.jfmipc_169_22)
- Gottfredson, L. S. (2021). The transition to noncommunicable disease: How to reduce its unsustainable global burden by increasing cognitive access to health self-management. *Journal of Intelligence*, 9(4), 61. <https://doi.org/10.3390/jintelligence9040061>
- Negi, J., Sankar D, H., Nair, A. B., & Nambiar, D. (2022). Intersecting sex-related inequalities in self-reported testing for and prevalence of Non-Communicable Disease (NCD) risk factors in Kerala. *BMC Public Health*, 22(1), 544. <https://doi.org/10.1186/s12889-022-12956-w>
- Singh, S. K., Chauhan, K., & Puri, P. (2023). Chronic non-communicable disease burden among reproductive-age women in India: evidence from recent demographic and health survey. *BMC Women's Health*, 23(1), 20. <https://doi.org/10.1186/s12905-023-02171-z>
- Yaya, S., Uthman, O. A., Ekholuenetale, M., & Bishwajit, G. (2018). Socioeconomic inequalities in the risk factors of noncommunicable diseases among women of reproductive age in sub-saharan Africa: A multi-country analysis of survey data. *Frontiers in Public Health*, 6, 307. <https://doi.org/10.3389/fpubh.2018.00307>

