

PREVALENCE OF SELECTED NON COMMUNICABLE DISEASES (DIABETES MELLITUS, HYPERTENSION, OBESITY AND ANEMIA): A CROSS-SECTIONAL STUDY AMONG ADULT WOMEN (30-45 YEARS)

Niranjani S¹, Anuradha R², Hepsibha beula rajam³, Sarala S⁴, Sharmila S⁵, Shrija R⁶

¹Head of the department, Department of Community Health Nursing, Tagore College of Nursing, TMCH Campus, Chennai, Tamil Nadu, India. niranmay26@gmail.com

² Head of the department, Department of Child Health Nursing, Tagore College of Nursing, TMCH Campus, Chennai, Tamil Nadu, India. arman5jessy@gmail.com

³ Associate professor, Department of Medical Surgical Nursing, Tagore College of Nursing, TMCH Campus, Chennai, Tamil Nadu, India. beularajam90@gmail.com

⁴ Assistant Professor, Department of Child Health Nursing, Tagore College of Nursing, TMCH Campus, Chennai, Tamil Nadu, India. Sarameu444@gmail.com

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Corresponding author

ABSTRACT

Introduction:

Non-communicable disease is major public problem in India, affecting the long-term health consequences that happens due to a combination of a variety of factors like environmental, physiological, genetic as well as behavioral factors. In India, nearly 5.8 million people die from NCDs every year or other words 1 in 4 Indians has a risk of dying from an NCD before they reach the age of 70. This shows a rapid epidemiological transition with a shift in disease burden to NCD.

Materials and Methods:

A descriptive cross-sectional research was carried out to determine common non-communicable diseases (NCDs) among women aged 30 to 45. The study included 500 adult women who met the criteria for inclusion, chosen through a convenient sampling method, which is a non-probability approach. The data collection was conducted at Chrompet and Sirukundram. The participants were screened for diabetes mellitus, hypertension, anemia and obesity using glucometer, sphygmomanometer Sahli's haemoglobinometer and weighing scale and inch tape respectively. Consent was obtained from all participants after they were fully informed about the study and its objectives. The obtained data was analyzed and interpreted.

Results:

The present study revealed that the prevalence of selected non-communicable disease was 145(29%) of the adult women had obesity, 105(21%) of them had hypertension, 102(20.4%) of them had diabetes and 154 (30.8%) of them had anemia.

Conclusion:

Screening and identifying various NCDs itself is a major initiative to combat diseases. Early detection and prompt treatment plays a major role in managing NCD's. In public health campaigns that promote healthy lifestyles, including regular physical activity and healthy diets can be effective in preventing NCDs. The knowledge among adults regarding the NCD can be increased by improving the awareness among adults. Thus this study had taken a major effort in identifying the prevalence of top four NCDs.

INTRODUCTION

Non-communicable diseases (NCDs) pose a significant health challenge globally, particularly among adult women aged 30 to 45 years. Among these NCDs, diabetes mellitus, hypertension, obesity, and anemia stand out as major

contributors to morbidity and mortality. Understanding the prevalence of these conditions among adult women within this age group is crucial for effective public health interventions and healthcare planning. This cross-sectional study aims to investigate the prevalence of selected NCDs, namely diabetes mellitus, hypertension, obesity, and anemia, among adult

women aged 30 to 45 years. By examining the frequency and distribution of these conditions within this demographic, would provide valuable insights into the burden of NCDs among women in their prime adult years. Through a comprehensive assessment of the prevalence of these NCDs, this study intends to contribute to the existing body of knowledge on women's health, inform healthcare policies, and facilitate the development of targeted prevention and management strategies. Ultimately, by shedding light on the prevalence of these NCDs, this research aims to support efforts aimed at promoting the health and well-being of adult women in the specified age group. The Sustainable Development Agenda for 2030 acknowledges non-communicable diseases (NCDs) as a significant obstacle to sustainable development.

GLOBAL BURDEN OF NON COMMUNICABLE DISEASES:

Diabetes: Diabetes has become a major global health concern. According to the International Diabetes Federation (IDF), approximately 537 million adults (aged 20-79 years) were living with diabetes worldwide in 2021. This number is expected to rise to 643 million by 2030 if current trends continue.

Hypertension: Hypertension, or high blood pressure, affects a significant portion of the global population. The World Health Organization (WHO) estimates that around 1.13 billion people worldwide have hypertension. It is a leading cause of cardiovascular diseases and premature death globally.

Anaemia: Anaemia is a widespread condition characterized by a deficiency of red blood cells or hemoglobin in the blood. According to the WHO, globally, approximately 1.62 billion people suffer from anaemia, with the highest prevalence found in preschool-age children and pregnant women.

Obesity: Obesity rates have been steadily rising worldwide, reaching epidemic proportions. According to the WHO, in 2016, more than 1.9 billion adults were overweight, and of these, over 650 million were obese. Obesity increases the risk of numerous chronic diseases, including diabetes, cardiovascular diseases, and certain cancers.

These statistics highlight the significant burden that diabetes, hypertension, anaemia, and obesity pose to global public health. Efforts to prevent and manage these conditions are critical to reducing their impact on individuals and healthcare systems worldwide.

MATERIALS AND METHODS:

A descriptive cross sectional study was conducted to assess the prevalence of obesity, diabetes mellitus, hypertension and anaemia among adult women (30-45years of age). A sample of 500 participants who met the inclusion criteria was selected using a non-probability convenient sampling method. The data collection was conducted at Chrompet and Sirukundram, areas at Chengalpattu district. All 500 participants were screened for diabetes mellitus, hypertension, anemia and obesity. The instrument used for data collection consists of section A - Self-administered questionnaire to collect demographic data and section B - screening tool consists of weighing scale and inch tape to elicit Body mass index, Glucometer to determine Capillary blood glucose level, sphygmomanometer to identify blood pressure and sahil's hemoglobinometer to identify hemoglobin level. The research received approval from the Tagore Institutional Ethics Committee. Written consent was obtained from all participants involved in the study. The obtained data was analyzed and interpreted.

MEASUREMENT OF PARAMETERS:

1. Body mass index:

Body Mass Index (BMI) is a commonly used measure to assess an individual's nutritional status based on their weight and height. A BMI below 18.5 indicates underweight, suggesting insufficient body mass relative to height. A BMI between 18.5 and 24.9 falls within the normal weight range, indicating a healthy balance between weight and height. BMIs ranging from 25.0 to 29.9 signify overweight, indicating excess body weight relative to height. A BMI of 30.0 to 34.9 falls into Obesity class I, indicating moderate obesity. Obesity class II encompasses BMIs ranging from 35.0 to 39.9, indicating severe obesity. Obesity class III, with a BMI above 40, represents extreme obesity, posing significant health risks due to excess body fat. These BMI categories provide a framework for evaluating an individual's nutritional status and assessing potential health risks associated with weight.

2. Checking blood glucose level:

Capillary blood glucose levels are used to categorize individuals into different health states based on their glucose levels. A reading below 140 mg/dl is considered normal, indicating a healthy blood glucose level. Levels between 140 and 200 mg/dl fall within the pre-diabetes range, suggesting higher than normal glucose levels but not yet reaching the threshold for diabetes. A reading exceeding 200 mg/dl indicates diabetes, signifying significantly elevated blood glucose levels requiring medical attention and management. These categories help healthcare professionals identify individuals at risk of developing diabetes and provide appropriate interventions to prevent or manage the condition effectively.

3. Checking blood pressure level:

Blood pressure measurements are classified into different categories based on systolic and diastolic readings, which represent the pressure exerted on the arterial walls during heart contraction and relaxation, respectively. A systolic blood pressure below 120 mm Hg and a diastolic blood pressure below 80 mm Hg are considered normal, indicating healthy blood pressure levels. Readings between 120 and 129 mm Hg for systolic pressure and below 80 mm Hg for diastolic pressure fall into the elevated category, suggesting slightly elevated blood pressure but not yet reaching the threshold for hypertension. Hypertension stage I is diagnosed when the systolic pressure ranges from 130 to 139 mm Hg or the diastolic pressure ranges from 80 to 89 mm Hg. Hypertension stage II is identified when the systolic pressure exceeds 140 mm Hg or the diastolic pressure exceeds 90 mm Hg. A hypertensive crisis occurs when the systolic pressure rises above 180 mm Hg or the diastolic pressure rises above 120 mm Hg, indicating a severe and potentially life-threatening situation requiring immediate medical attention. These categories help healthcare professionals assess and manage blood pressure levels to prevent cardiovascular complications and promote overall health.

4. Hemoglobin grading system:

Hemoglobin levels are categorized into different grades to assess the severity of anemia, with varying reference ranges for women and men. Grade 0 indicates normal hemoglobin levels, with a range of 12.0-16.0 g/dl for women and 14.0-18.0 g/dl for men. Grade 1 signifies mild anemia, characterized by a hemoglobin level of 10.0 g/dl. Grade 2 represents moderate anemia, with hemoglobin levels falling between 8.0 and less than 10.0 g/dl. Severe anemia is classified as Grade 3, with hemoglobin levels ranging from 6.5 to less than 8.0 g/dl. These gradations aid in assessing the severity of anemia and determining appropriate interventions to manage the condition effectively.

RESULT AND DISCUSSION:

TABLE 1: PREVALENCE OF SELECTED NON COMMUNICABLE DISEASES

N=500

S.NO	NON-COMMUNICBLE DISEASE	FREQUENCY	PERCENTAGE
1.	Diabetes mellitus	102	20.4%
2.	Hypertension	105	21%
3.	Obesity	145	29%
4.	Anemia	154	30.8%

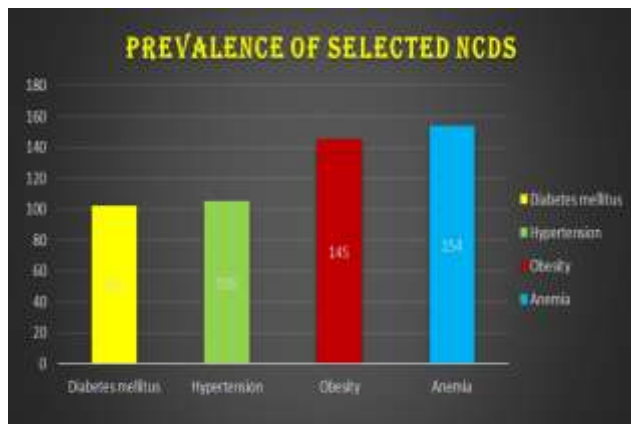


FIGURE 1: PREVALENCE OF SELECTED NCDs

Table 1 and figure 1 revealed that among 500 study participants the prevalence of selected non-communicable disease was 145(29%) of the adult women had obesity, 105(21%) of them had hypertension, 102(20.4%) of them had diabetes and 154(30.8%) of them had anemia.

In consensus with the present study Soumitra ghosh (2019) conducted a study and the results shown that the prevalence of hypertension in India was 11.3% among persons aged between 15 and 49 years. Jie Chen and colleagues (2013) conducted research revealing that in Jilin Province, the overall prevalence of overweight stood at 32.3%, with males at 34.3% and females at 30.2%. Similarly, the prevalence of obesity was 14.6%, with males at 16.3% and females at 12.8%. Notably, both overweight and obesity were more prevalent in males compared to females, a statistically significant difference ($p < 0.001$). In a separate study by Sammuell Hammond (2016), a high incidence of anemia was noted among patients with diabetes, where 84.8% exhibited significantly lower hemoglobin concentrations (males: 11.16 ± 1.83 ; females: 10.41 ± 1.49) compared to controls (males: 14.25 ± 1.78 ; females: 12.53 ± 1.14). Furthermore, a significant association between hemoglobin concentration and fasting blood glucose was observed among these cases. Additionally, Abinav Vaidya (2013) conducted research showing that the prevalence of current tobacco use was 60.4% in men and 23.5% in women. Although a majority (90.8%) reported consuming more than one serving of fruits and vegetables daily, only a minimal percentage (2.1%) consumed over five servings. Overweight/obesity was more prevalent in women (39.2%) compared to men (18.9%), while underweight was more common in men (21.0%) than in women (7.1%). Hypertension prevalence was 18.6% in men and 20.7% in women, while diabetes prevalence was 15.6% in men and 22.5% in women, notably higher than the estimated national prevalence of 7%. Moreover, the prevalence of raised total cholesterol (≥ 190 mg/dL) was 25.7% in men and 34.0% in women.

The NCDs are drastically increased in women nowadays due to lack of awareness, poor nutritional habits, lack of physical activity, increasing use of tobacco and alcohol, poor sleep and rest and negligence towards own health due to lack of time and sedentary lifestyle. Screening them for NCDs is the major

initiative and first step to combat these diseases. Government is taking lot of efforts in identifying various NCDs among adult population in order to reduce the disease burden

CONCLUSION

This cross-sectional study sheds light on the prevalence of selected non-communicable diseases (NCDs), namely diabetes mellitus, hypertension, obesity, and anemia, among adult women aged 30 to 45 years. The findings underscore the significant burden of these NCDs within this demographic, with notable prevalence rates observed. Diabetes mellitus, hypertension, and obesity emerged as prevalent health concerns, with a considerable proportion of women affected by these conditions. Additionally, anemia was identified as a prevalent issue, further highlighting the complex health challenges faced by adult women in this age group. These findings emphasize the importance of targeted interventions and public health initiatives aimed at prevention, early detection, and management of these NCDs among adult women. By addressing these health issues comprehensively, healthcare systems can work towards improving the overall health and well-being of women in the specified age range, ultimately contributing to better health outcomes and quality of life.

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