



COMPARISON OF NATIONAL FAMILY HEALTH SURVEY-4 AND NATIONAL FAMILY HEALTH SURVEY-5 FOR NON-COMMUNICABLE DISEASE AND ITS RISK FACTORS IN CHHATTISGARH

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Abstract:

Background: The epidemiological landscape of Chhattisgarh, India, is shifting with a rise in the prevalence of non-communicable diseases (NCDs) such as hypertension, diabetes and cardiovascular diseases. This study compares the prevalence and the risk factors of NCDs in the state using National Family Health Survey (NFHS) data. Socio-economic disparities, lifestyle changes, and demographic shifts contribute to this trend. Understanding these patterns is crucial for developing targeted health interventions to mitigate the growing NCD burden in Chhattisgarh. This study compares the prevalence of non-communicable disease and its risk factor in the Chhattisgarh state, India

Methods: This study compares NFHS-4 and NFHS-5 data for Chhattisgarh using state and district fact sheets from IIPS. Key indicators analysed include body mass index, waist circumference, waist-to-hip ratio, use of tobacco and alcohol, hypertension, diabetes, cancer screening.

Results: The study comparison of data of two survey on non-communicable disease, Obesity and overweight have increased among men and women. Blood sugar levels show a decline in high cases but an increase in very high cases for women. Hypertension has risen, while cancer screenings have declined. Tobacco and alcohol consumption have reduced, but intake of fried food and aerated drinks has increased. Physical inactivity has risen, with more individuals using motorcycles and cars.

Conclusion: The rising prevalence of NCDs in Chhattisgarh highlights the need for targeted public health interventions. Promoting healthy lifestyles, improving nutrition awareness, and increasing access to healthcare can help mitigate this growing health crisis.

Key words: Non-Communicable Disease, health survey, Risk Factors

Introduction

The epidemiological landscape of Chhattisgarh, India, is undergoing a significant transformation characterized by a rising prevalence of non-communicable diseases (NCDs). This shift reflects broader global trends where NCDs have now become the leading causes of mortality and morbidity, especially in low- and middle-income countries. In Chhattisgarh, the burden of NCDs is exacerbated by a combination of socio-economic factors, lifestyle changes, and environmental influences that contribute to the deterioration of public health (1,2).

Recent studies indicate that cardiovascular diseases, diabetes, and hypertension are among the most prevalent NCDs in the region, with cardiovascular diseases alone accounting for a substantial proportion of medically certified deaths(2,3). Increasing incidence of these lifestyle diseases is closely linked to factors such as poor dietary habits, physical inactivity, and rising obesity rates, which have been documented in various demographic groups across Chhattisgarh (4). Furthermore, the aging population in the state is likely to contribute to the growing burden of NCDs, as older individuals are more susceptible to chronic conditions (5).

The socio-economic disparities in Chhattisgarh also play a critical role in the patterns of NCDs. Marginalized communities, particularly tribal populations, face unique challenges that increase their vulnerability to NCDs, including limited access to healthcare, poor nutritional status, and a lack of health education (6). As the state grapples with the dual burden of communicable and non-communicable diseases, it becomes imperative to set up targeted public health strategies that address these disparities and thereby promote healthier lifestyles among the population (7).

Hence, understanding the trends and patterns of non-communicable diseases in Chhattisgarh is essential for formulating effective health policies and interventions. The interplay of demographic changes, lifestyle factors, and socio-economic conditions necessitates a comprehensive approach to tackle the rising tide of NCDs in the region, ensuring that health systems are equipped to manage both chronic and acute health challenges effectively. National Family health Survey (NFHS) provides data related to population, health, and nutrition for India including data for each state and union territory. Hence comparing the trends of disease and risk factor can give valuable insights. This study compares the prevalence of non-communicable disease and its risk factor in the Chhattisgarh state, India

Methods:

NFHS provides data on population, health, and nutrition for India and each state and union territory. The purpose of the survey has two parts: to get the data for program and policy purpose; and second one is to get the information on the emerging health issues. Five rounds of survey have been conducted up till now starting since 1992-93. Due to increased mortality from non-communicable disease; the components such as random blood sugar and blood pressure has been included in the survey from NFHS-4 and afterwards.

This research paper compares the state and district wise fact sheet summary data of NFHS-5 and NFHS-4 in the state of Chhattisgarh which was published by the International Institute for Population Sciences (IIPS). Comparison was conducted for risk factors such as BMI, waist circumference, waist to hip ratio, tobacco and alcohol consumption. Hypertension, Diabetes, cancer screening, random blood sugar level was also compared. Other indicators such as anaemia status of women of the reproductive age group, as well as stunting, wasting, and severe wasting in children were also compared. The NFHS-5 and NFHS-4 data was used to prepare all the figures.

Results:

Risk factors for non-communicable disease:

Risk factors for the non-communicable diseases are of two types: Modifiable and Non-modifiable. Main factor among modifiable risk factors is the nutritional status of the individual. Obesity and overweight are the major risk factors for developing any non-communicable disease. Figure-1 compares the nutritional status of the men and female as per NFHS-4 and NFHS-5. As per Figure-1, proportion men and female with overweight and obese, are increased in NFHS-5 as compared to NFHS-4 in Chhattisgarh.

Figure-2 shows the comparison of Tobacco consumption among NFHS-4 and NFHS-5. The trend of consuming tobacco consumption and alcohol consumption has been reduced in NFHS-5 as compared to previous survey.

Regarding consumption of dietary fibres like consumption of Green leafy vegetables in men and women (NFHS-4: Women-68.4%, Men-54.2%, NFHS-5: Women-74.4%, Men-62.1%). On the other hand, there is also increased in the consumption of fried food and aerated drinks in NFHS-5 when compared to NFHS-4.

Another important risk factor such as physical exercise and sedentary life style, the usage of motor cycle/car (69.5%/11.2%) has been increased in NFHS-5 when compared to the NFHS-4(57.1%/10.4%).

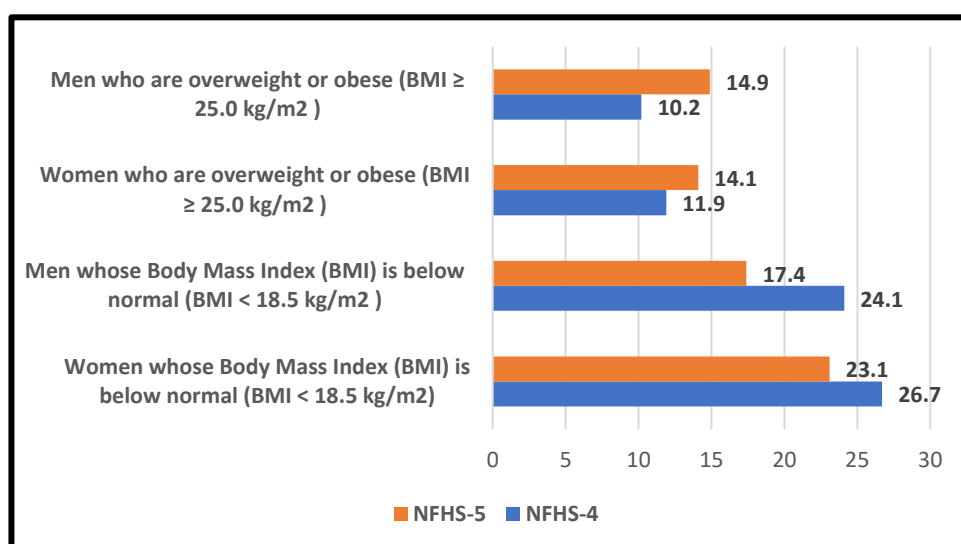


Figure 1: Comparison of NFHS data according to Nutritional Status among Adults

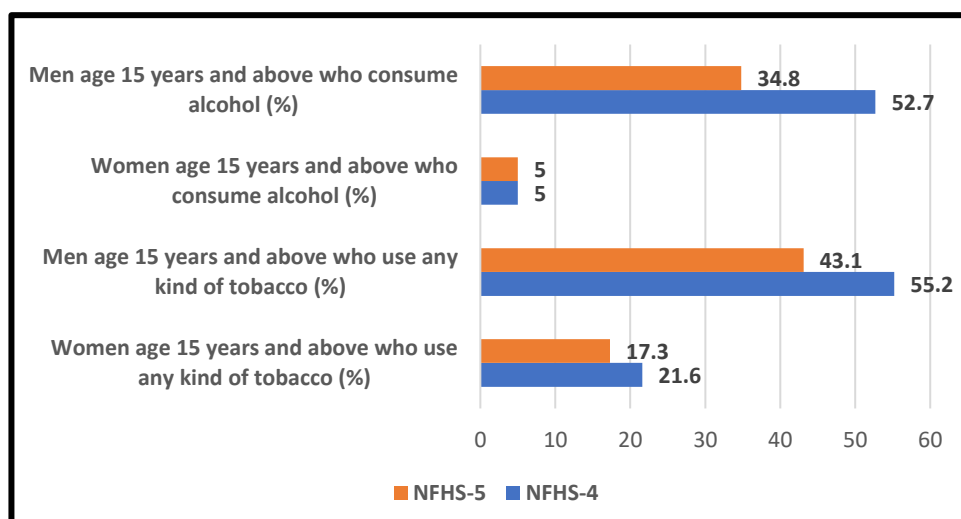


Figure 2: Comparison of NFHS data according to Tobacco and Alcohol Consumption

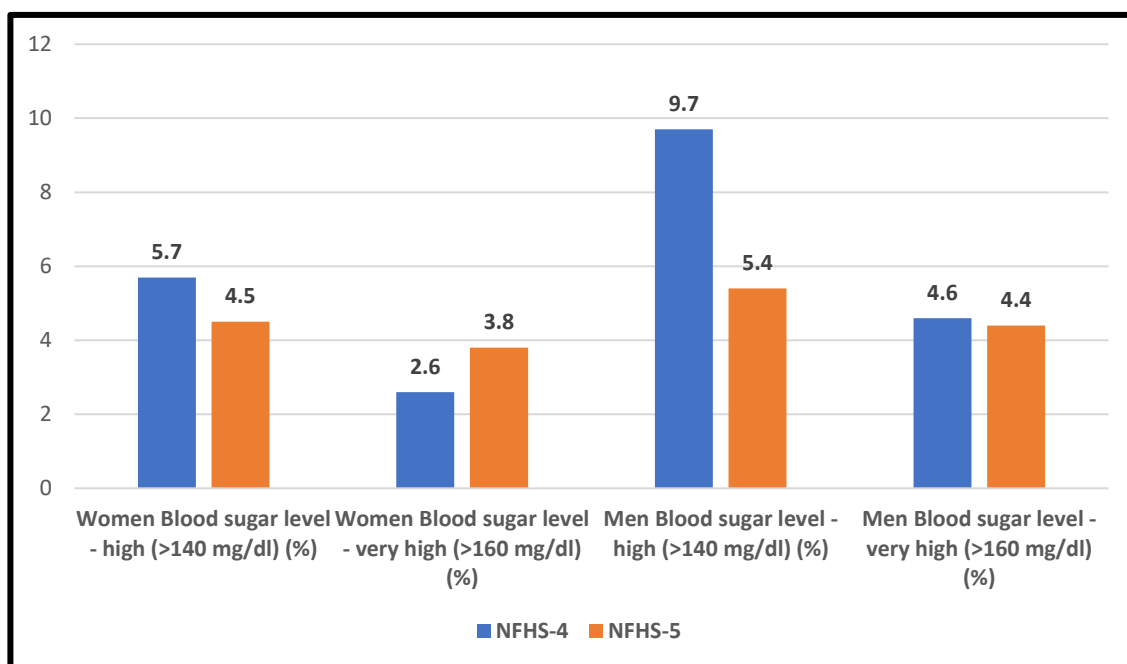


Figure 3: Comparison of NFHS data according to Blood Sugar level

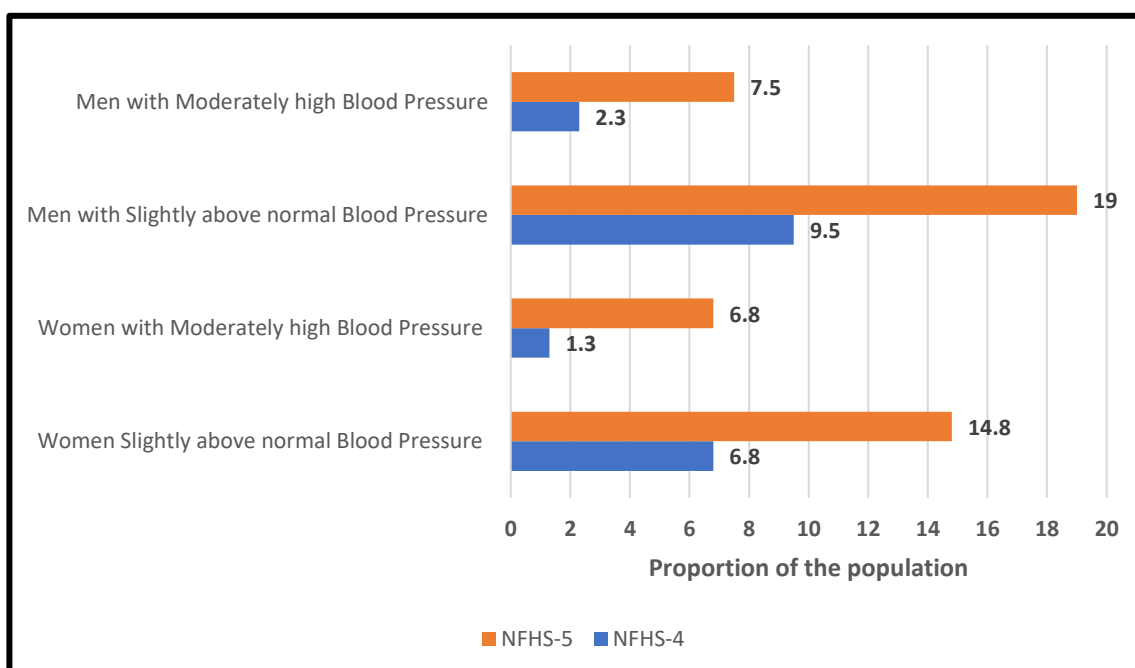


Figure 4: Comparison of NFHS data according to Blood Pressure Level

Non-communicable Disease Comparison

Comparison of Blood sugar for men and female is shown in Figure 3. As per NFHS-5, women and men with blood sugar level high was reduced, but proportion with women with very high blood sugar is increased.

Figure 4 shows, comparison of blood pressure level for both the surveys. As per the survey reports, blood pressure levels have been increased over the period among both the gender.

Screening for the various cancer such as oral cancer, cervical cancer and breast cancer has been reduced over the period.

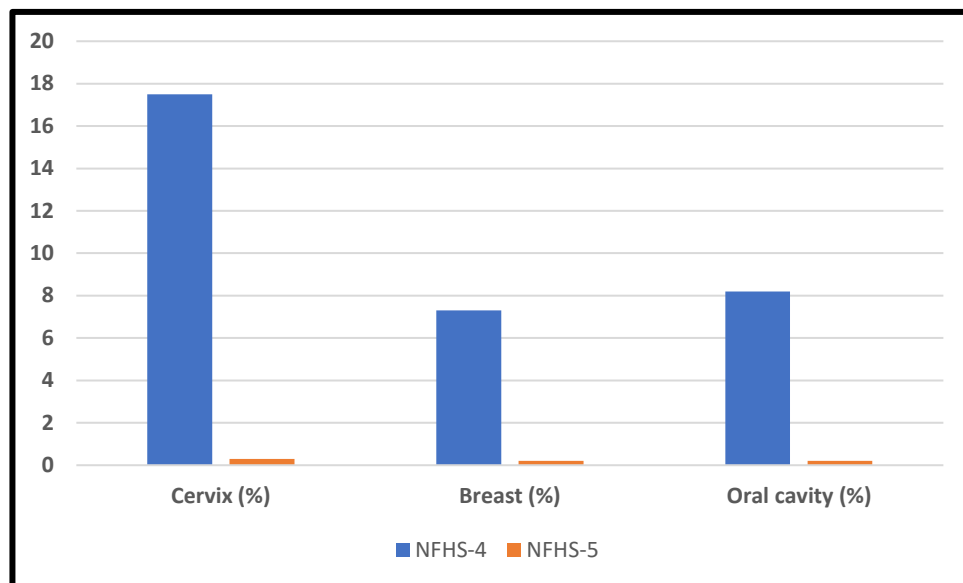


Figure 5: Comparison of NFHS data according to Screening for different Cancer

Discussion:

Over the past decade, the trend of overweight and obesity among adults in India has shown a significant increase, raising serious public health concerns. According to the National Family Health Survey (NFHS-4) survey carried out 2015-16, the prevalence of overweight and obesity among Indian adults has risen markedly, with the proportion of overweight individuals increasing from 20.0% in 2005 to 30.0% in 2016(8). As per NFHS-5, as shown in result the proportion of men and female with overweight and obesity has been increased. This upward trend is particularly pronounced among urban populations, where lifestyle changes, which include increased consumption of processed foods and decreased physical activity, have contributed to higher rates of obesity(9). This trend is concerning as it sets the stage for long-term health issues, including diabetes and cardiovascular diseases, later in life(9).

In addition to urbanization and lifestyle changes, the impact of globalization on dietary habits cannot be overlooked. The adoption of Western eating patterns, characterized by high-calorie, low-nutrient foods, has been linked to the rising rates of obesity in India (10,11). These findings are partially available in NFHS data as well, where there is increasing trend of fried food and aerated drinks were observed.

Over the past decade, tobacco consumption in India has exhibited complex trends, characterized by both persistent high usage rates and emerging patterns influenced by socio-economic factors and public health interventions. According to the Global Adult Tobacco Survey (GATS), approximately 28% of adults in India consumed tobacco in some form as of the latest survey, with a notable prevalence of smokeless tobacco use, particularly among men(12). In present study it was found to be around the 43% in men and 17% in female. The trend is on the declining side which may be due to various policies such as COTPA act, implementation of National Tobacco Control Programme (NTCP) and various state-level initiatives.

On comparison of blood pressure levels among both the survey, there is increase in the hypertensive population over the period. There is significant rise in increased blood pressure in NFHS-5 as compared to previous survey. Over the past decade, the trend of hypertension in India has shown a significant increase, reflecting a growing public health concern. The prevalence of hypertension among adults has been reported to range from 20% to 40% in urban areas and 12% to 17% in rural regions, with an overall estimate suggesting that approximately one in four adults in

India is affected by this condition (13,14). Recent studies indicate that the prevalence of hypertension among younger populations (ages 15-39) has also risen, with a reported rate of 13.8% among adolescents (15). This alarming trend necessitates the incorporation of standardized guidelines for hypertension management, particularly among younger demographics, to address the ever increasing burden of non-communicable diseases (NCDs) in India.

In comparison of NFHS data and the present study, there has been no major changes has been observed in blood sugar level over the period. On the contrary, The Indian Council of Medical Research (ICMR) conducted the INDIAB study, which revealed that the prevalence of diabetes varies significantly across different states, with figures ranging from 4.3% to 10% in various urban and rural settings (16). Moreover, the prevalence of impaired glucose tolerance (IGT) is also on the rise, with projections suggesting that the number of individuals with IGT in India could increase from 24.3 million to 38.8 million by 2035 (17). The difference observed here may be attributed to the regional variation and sample of the study.

Screening for cancer in India has gained an increasing attention over the past decade, in the context of rising cancer incidence and mortality rates. Oral, breast and cervical cancers lead the list. Screening is an important tool in the detection of cancer. India has a cancer screening framework available in the program for screening of these cancers. In the state of Chhattisgarh, proportion of the women aged 15-49 years having ever undergone a screening test for cancer of the cervix is 0.4%, those ever undergone a screening test for breast cancer is 0.2%, and ever undergone a screening test for cancer of the oral cavity is 0.2%, which is slightly higher in men (1%). This percentage is lower compared to the previous year, which shows poor implementation of the program.

Conclusion:

Over the past decade, the prevalence of overweight and obesity among adults in Chhattisgarh has significantly increased, influenced by urbanization, lifestyle shifts, and socio-economic factors. Similarly, hypertension, diabetes, and elevated blood sugar levels have increased across various demographics. Tackling this growing health challenge requires holistic public health initiatives focused on encouraging healthier lifestyles, enhancing nutritional awareness, and expanding access to physical activity opportunities.

Acknowledgments

None

Conflicts of interest

None declared

Ethical considerations

This study was approved by the VY Institute of Medical Science (p) Ltd. IEC (Institutional Ethics Committee) Ref No. VYH/EC/408/2024; Date of Meeting: 12/11/24

Code of ethics

The analysis is based on secondary data available online, hence no informed consent of individual participants was required. No personal and sensitive information was used and if any, was anonymized to protect participant identity. Data was stored securely and used solely for research purposes. The study ensured no harm, distress, or discomfort was caused to the participants. The research findings are reported accurately, without fabrication or falsification of data. Acknowledgment of all data sources and contributors has been made appropriately.

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Authors' contributions

Dr Ajit Chhatre: Concept, design, definition of intellectual content, literature search, data analysis, manuscript editing, manuscript review

Dr Rajesh Aggrawal: Concept, definition of intellectual content, literature search, manuscript preparation, manuscript editing, manuscript review

Dr Revati Gupta: Concept, definition of intellectual content, literature search, manuscript preparation, manuscript editing, manuscript review

Dr Vishnu Gupta: Definition of intellectual content, literature search, manuscript editing, manuscript review, corresponding author

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