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Original Research Article

Burden of non-communicable diseases and associated risk factors in rural areas of Jharkhand

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ABSTRACT

Background: Non-communicable diseases (NCDs) are becoming a greater burden in India. The onset of NCDs occurs ten years earlier (around age 45) in India than it does in many developed nations. This study was conducted in 5 blocks of East Singhbhum and Saraikela-Kharsawan districts of Jharkhand to determine the prevalence of diabetes and hypertension in the rural population.
Methods: Community based cross sectional study was conducted between April 2022 to Jan 2023 among individuals residing in rural areas of Jharkhand using multi-stage sampling with a sample size of 4579 individuals, who were 30 years and above.
Results: Prevalence of diabetes amongst the study population was 16.3% (750) and prevalence of hypertension amongst the study population was 21.3% (977).
Conclusions: High prevalence of non-communicable diseases such as diabetes and hypertension increase the burden on existing health care system. Primary prevention using health education, lifestyle modification etc. and secondary prevention using early diagnosis by screening in the community and referral to nearby health centers for treatment prevents the complications of NCDs.

Keywords: Diabetes, Hypertension, Non-communicable diseases, Rural health

INTRODUCTION

Non-communicable diseases (NCDs) account for 41 million annual deaths or 74% of all fatalities worldwide. 17 million people worldwide die from a NCD before they turn 70 each year; 86 percent of these premature deaths take place in low- and middle-income nations. The majority of NCDs, or 17.9 million deaths per year, are caused by cardiovascular diseases, followed by cancers (9.3 million), chronic respiratory diseases (4.1 million) and diabetes (2.0 million, including kidney disease as a complication of diabetes). Use of tobacco products, inactivity, harmful alcohol use, unhealthy diets and physical inactivity all raise the risk of mortality from NCDs.[1]

NCDs pose a threat to the 2030 agenda for sustainable development, which includes a goal to reduce the likelihood of dying from any of the four major NCDs between the ages of 30 and 70 by one-third. The prevalence of NCDs and poverty are closely related. It is anticipated that the rapid increase in NCDs will obstruct efforts to reduce poverty in low- and middle-income countries, particularly by raising household health care costs. 61.8% of deaths in India were attributed to non-communicable diseases in 2016, up from 37.9% in 1990.[2]

Non-communicable diseases (NCDs) are becoming a greater burden in India. The onset of NCDs occurs ten years earlier (around age 45) in India than it does in many developed nations, where they typically manifest in people 55 years of age or older. The issues of multiple chronic conditions and the fact that many go undiagnosed as a result of lack of awareness and inadequate access to healthcare are aggravating this issue. A double burden of NCDs and communicable diseases caused by infectious

and parasitic diseases, continue to pose significant challenges to India's public health system.[3] As per National Family Health Survey-5, prevalence of diabetes among Women and Men of Jharkhand is 10.2% and 14.1% respectively. And prevalence of hypertension among women and men of Jharkhand is 17.8% and 22.6% respectively.[4]

This study was conducted in 5 blocks of East Singhbhum and Saraikela-Kharsawan districts of Jharkhand to determine the burden of non-Communicable diaseases.

Objectives

To determine the prevalence of diabetes mellitus amongst individuals of east Singhbhum and Saraikela-Kharsawan districts of Jharkhand. To determine the prevalence of Hypertension amongst individuals of east Singhbhum and Saraikela-Kharsawan districts of Jharkhand. To describe the sociodemographic profile of the study population.

METHODS

A cross sectional study was conducted between April 2022 to January 2023 amongst individuals residing in rural areas of East Singhbhum and Saraikela-Kharsawan districts with sample size of 4579 individuals (minimum required: 3522, based on $4PQ/D^2$, p=10.2%).[4] Multistage sampling was used to select sample wherein at first stage stratified random sampling with sampling ratio using PPS (probability proportional to size) was used to select blocks and in stage 2, convenient sampling was used for selecting villages within a block. Individuals who were 30 years and above, permanent residents (>6 months) and who give informed consent were included in the study. Individuals who were not permanent residents of the study area were excluded (<6 months). A semi structured questionnaire was used for data collection and analysis was done using descriptive statistics like frequency, proportion, mean, standard deviation and inferential statistics like chi-square test.

Operational definitions

Diabetes

Random blood sugar level >200 mg/dl and/or taking medicine to control blood sugar levels.

Hypertension

Elevated blood pressure (systolic ≥140 mm of Hg and/or diastolic ≥90 mm of Hg) on two different occasions and/or taking medicine to control blood pressure.

RESULTS

In the present study among 4579 individuals, 3084 are females and 1495 are males. Mean age of the study population was 47.5±13.05 years (Table 1).

Table 1: Sociodemographic details of the study population (n=4579).

Factor	Frequency	Percentage
Gender		
Male	3084	67.4
Female	1495	32.6
Age group		
30-40 years	1807	39.5
41-50 years	1045	22.8
51-60 years	969	21.2
>60 years	758	16.6
Block name		
Chandil	306	6.6
Gamharia	407	8.9
Golmuri-cum-Jugsalai	2503	54.7
Patamda	1207	26.4
Potka	156	3.4

Prevalence of diabetes amongst the study population was 16.3% (750) and prevalence of hypertension amongst the study population was 21.3% (977) (Table 2 and 3).

Table 2: Distribution of hypertensives according to gender (n=4579).

Gender	Normal	Hypertensive	Total
Female	2474	610	3084
Male	1128	367	1495
Total	3602	977	4579

Chi-square value =13.64, p<0.05

Table 3: Distribution of gender among diabetics (n=4579).

Gender	Normal	Diabetic	Total
Female	2579	505	3084
Male	1250	245	1495
Total	3829	750	4579

Chi-square value =0.00, p=0.991

Among 3084 females in this study, 610 (19.7%) were hypertensive and among 1495 males, 367 (24.5%) were hypertensive. There is a statistically significant difference among the two groups as tested by Chi square test (Chi square value 13.64, p<0.05) (Table 2).

Table 4: Distribution of hypertensive patients according to age groups (n=4579).

Age group	Normal	Hypertensive	Total
30-40 years	1647	160	1807
41-50 years	796	249	1045
51-60 years	668	750	969
>60 years	491	267	758
Total	3602	977	4579

Chi-square value =313.32, p<0.05

Most of the hypertensive patients i.e., 750 (76.7%) were in the age group of 51-60 years and it was statically significance as tested by Chi square test (Chi square value 313.32, p<0.05) (Table 4).

Among 3084 females in this study, 505 (16.37%) were diabetic and among 1495 males, 245 (16.38%) were diabetic. There is a no statistically significant difference among the two groups as tested by Chi square test (Chi square value 0.00, p=0.991) (Table 3).

Table 5: Distribution of diabetic patients according to age groups (n=4579).

Age group	Normal	Diabetic	Total
30-40 years	1583	224	1807
41-50 years	864	181	1045
51-60 years	782	187	969
>60 years	600	158	758
Total	3829	750	4579

Chi-square value =38.66, p<0.05

Most of the diabetic patients i.e., 224 (29.8%) were in the age group of 30-40 years and it was statically significance as tested by Chi square test (Chi square value 38.66, p<0.05) (Table 5).

DISCUSSION

A study conducted by Anjana et al found the prevalence of diabetes in Jharkhand to be 5.3% in 2011, in contrast to our study which reports a prevalence of 16.3%. This difference could be attributed to various factors such as the difference in the time period of the studies and the growing burden of non-communicable diseases over the past decade.[5]

Kumar et al conducted a study in 2015 in the rural area of Ranchi district, Jharkhand, which reported a hypertension prevalence of 19.8%. Our study shows a similar prevalence of hypertension at 21.3%. In Kumar et al study, the prevalence of hypertension was higher in males (22.8%) than in females (16.5%), which is also consistent with our findings that show a higher prevalence of hypertension in males (24.5%) compared to females (19.7%).[6]

Kumari et al conducted a study in 2017, examining the prevalence of hypertension in both rural and urban populations of Jamshedpur, Jharkhand. The study found the prevalence of hypertension to be 8.10% in rural areas and 13.12% in urban areas, which is lower than our present study. The difference in prevalence rates may be due to various factors, such as different geographic areas and different time periods.

Notably, the NFHS 5 data reveals that the prevalence of hypertension in rural areas of Jharkhand is 17% among women and 21.6% among men, which is similar to our findings. However, the prevalence of diabetes in rural areas of Jharkhand is 9.5% among women and 13.4% among men, according to NFHS 5 data, which is lower than our study's prevalence of 16.3%. This difference may be attributed to several biases, such as length-biased sampling and self-selection bias, as well as the difference in time period.[7]

The study conducted by Kumari et al in 2017 aimed to investigate the prevalence of hypertension in both rural and urban populations of Jamshedpur, Jharkhand. The study found the prevalence of hypertension to be 8.10% in rural areas and 13.12% in urban areas, which is significantly lower than the prevalence rate reported in the present study. The reasons for this discrepancy could be multifactorial, including differences in the geographical areas studied, sample sizes, and time periods of the studies.[7]

Despite this, the findings of the present study align with the data reported in the NFHS 5, which shows that the prevalence of hypertension in rural areas of Jharkhand is 17% among women and 21.6% among men.[4] These findings highlight the urgent need for attention to be paid to the management and prevention of hypertension, particularly among men, in Jharkhand.

On the other hand, the prevalence of diabetes in rural areas of Jharkhand, according to NFHS 5 data, was 9.5% among women and 13.4% among men, which is significantly lower than the prevalence rate found in the present study.[4] A possible explanation for this difference could be the biases that may have affected the sampling, such as length-biased sampling and self-selection bias.

CONCLUSION

It is essential to address these public health issues of hypertension and diabetes in Jharkhand, both in urban and rural areas. This requires identifying the risk factors that contribute to the high prevalence rates of these conditions and developing effective strategies for their prevention and management. Further research is necessary to understand the underlying reasons for the differences in prevalence rates reported in different studies, which can inform the development of evidence-based interventions. By working towards better understanding and addressing these public health concerns, it is possible to improve the health and wellbeing of individuals and communities in Jharkhand.

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REFERENCES

1. World Health Organization. Fact sheet: Non communicable diseases, 2023. Available at: https://www.who.int/news-room/ /nicable-diseases. Accessed on 31 January 2023.
2. Press Information Bureau. Status of non-communicable diseases (NCDs) in India, 2022. Available at: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1796435. Accessed 3 on January 2023.
3. The lancet. The best science for better lives, 2018. Available at: https://www.thelancet.com/action/showPdf?pii=S2214-109X%2818%2930451-. Accessed on 3 January 2023.
4. National Family Health Survey (NFHS-5), 2021. Available at: http://rchiips.org/nfhs/factsheet_nfhs-5.shtml. Accessed on 3 January 2023.
5. Anjana RM, Pradeepa R, Deepa M. Prevalence of diabetes and prediabetes (impaired fasting glucose and/or impaired glucose tolerance) in urban and rural India: Phase I results of the Indian Council of Medical Research- India Diabetes (ICMR–INDIAB) study. Diabetologia. 2011;54:3022-7.
6. Kumar C, Haider S, Kashyap V. Prevalence of hypertension and its association with dietary practices in a rural area of Ranchi district of Jharkhand. Indian J Community Health. 2014;26(Supp 2):209-15.
7. Kumari A, Chakrabarty A. Study of blood pressure in rural and urban population of Jamshedpur (Jharkhand). Int J Sci Stud. 2017;5(5):73-80.

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