

Research Article

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Study of Clinical Profile of Geriatric Patients With Special Reference to Non-Communicable Diseases At Rural Tertiary Health Care Centre

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HIGHLIGHTS

1. Geriatric patients' profiles analyzed in depth.
2. Focus on non-communicable diseases prevalent.
3. Rural healthcare challenges addressed comprehensively.
4. Insights on disease management and prevention.
5. Study aims to improve patient outcomes.

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ABSTRACT

Non-communicable diseases (NCDs) are increasingly becoming a significant health concern among the elderly, especially in rural areas of developing countries. A study conducted at a rural tertiary healthcare center in India examined the clinical profile of 150 geriatric patients with a focus on NCDs. The most prevalent NCDs were hypertension (20.67%) and diabetes (13.33%), with notable occurrences of dyslipidemia (15.33%) and stroke (5.33%). Hypertension was particularly common among those aged 60-70, comprising over 61% of the population studied. The gender distribution was equal, with males and females each making up 50% of the study population. Despite lifestyle factors like smoking and alcohol consumption being present in some patients (8% for smoking and 7.33% for alcohol), a significant majority (84.67%) reported no history of addiction. The study underscores the economic burden posed by NCDs, particularly in rural settings where healthcare resources are limited, and lifestyle changes such as poor diet and sedentary behavior further exacerbate the issue. Moreover, the study highlights the need for targeted interventions to mitigate these risks, calling attention to the necessity of preventive healthcare measures. These include lifestyle modifications and community based interventions aimed at reducing the prevalence of NCDs. Interestingly, the research found an equal distribution of NCDs between genders, contrasting with prior studies that have suggested a higher prevalence of conditions like hypertension in post menopausal women. This highlights the importance of further gender specific research to fully understand the impact of NCDs on rural elderly populations. Ultimately, the study provides valuable insights into the health challenges faced by older adults in rural India, emphasizing the importance of effective healthcare strategies tailored to meet their unique needs.

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INTRODUCTION

The proportion of elderly individuals is rising particularly in India, leading to an increased prevalence of age related health issues, especially non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes, chronic respiratory conditions, and cancers. These conditions significantly impact the quality of life for older adults and present major challenges for healthcare providers, especially in rural areas where resources are often limited [1,2].

Rural tertiary healthcare centers play a critical role in addressing the health needs of older populations in these regions. However, there is limited data available on the clinical profile of geriatric patients in such settings, particularly concerning the burden and management of NCDs. Understanding the specific health needs and challenges faced by this population is vital for developing targeted interventions and improving healthcare delivery [3,4].

This study aims to assess the clinical profile of geriatric patients, with a focus on NCDs, at a rural tertiary healthcare center. By analyzing patient data, the study seeks to identify common health issues, risk factors, and patterns of disease prevalence among the elderly. The findings will offer valuable insights into the health status of geriatric patients in rural areas and help inform strategies for enhancing their care and management [5].

NCDs are highly prevalent in older age, affecting treatment costs, quality of life, mental health, and overall well-being. They are leading causes of disease, disability and death in later life and have become a significant global health concern. Risk factors for these age-related diseases include unhealthy lifestyle choices, such as poor nutrition, excessive alcohol use, physical inactivity, and tobacco consumption. NCDs account for 71% of global fatalities with low and middle income countries bearing the brunt of this burden. Multimorbidity, or the coexistence of two or more chronic illnesses, is also rising globally [6,7,8].

As living standards improve, the percentage of the elderly population is increasing rapidly. This trend is particularly noticeable in developing countries like India, where longer life expectancy brings new public health challenges. Cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases are the leading NCDs, responsible for a significant portion of deaths in low- and middle income nations. In India, the mortality rate from NCDs rose from 53.6% in 1990 to 61.8% in 2016, with the highest burden seen in the 40–69 age group. Disability Adjusted Life Years

(DALYs), a measure of NCD morbidity also increased during this period [9,10].

Several risk factors contribute to the rise of NCDs in India including poor dietary habits, alcohol and tobacco use low physical activity and elevated levels of blood pressure, plasma glucose, cholesterol, and body mass index. Studies in northern states like Punjab and Haryana have highlighted the significant presence of these risk factors. Additionally, diabetes, a complex and long-term condition, requires continuous medical supervision and multifactorial risk reduction strategies [11].

A concept known as "health needs assessment" has evolved to identify the specific health needs of communities, and it is now an evidence based approach to healthcare service planning. As the elderly population continues to grow, ensuring a good quality of life for this vulnerable demographic will be a major challenge for healthcare providers. However, reliable data on the health issues of elderly individuals from various social contexts in India is still lacking. This study is designed to address this gap by investigating the clinical profile of geriatric patients, with a particular focus on non-communicable diseases, at a rural tertiary healthcare center [12,13,14].

The aim of this study is to examine the clinical profile of geriatric patients, with a focus on non-communicable diseases, at a rural tertiary healthcare center. The objectives include assessing the overall clinical profile identifying the prevalence of non communicable diseases and evaluating sedentary lifestyles and physical activity levels among elderly patients.

MATERIAL AND METHODS

This prospective observational study was conducted at the Department of Geriatric population with non-communicable diseases at rural health tertiary care hospital from 01 november 2022 to 31 october 2024. Ethical approval has been obtained from the Ethical Approval Committee of Rural health tertiary care hospital.

Study Population:

The study population comprised elderly patients with non-communicable diseases at a rural tertiary care hospital. Data was collected through a detailed history of conditions such as stroke, diabetes, cancer, and cardiovascular diseases, along with associated risk factors like smoking and diet. Systematic random sampling was used, with every 10th patient from the outpatient department being assessed. Inclusion criteria included patients aged 60 or older who provided valid consent, while those unwilling to participate, with incomplete assessments, or suffering

from communicable diseases were excluded.

Data Analysis:

Ethical clearance was obtained from the institutional ethics committee, and confidentiality of study subjects was maintained throughout. A baseline survey was conducted in the selected village with the assistance of Anganwadi and medical social workers, leading to the preparation of a list of diabetic patients. Data was compiled in Microsoft Excel and analyzed using SPSS software version 20.0. Qualitative variables were presented as frequencies and percentages, while prevalence rates were reported in percentages. Statistical analysis employed Fisher's exact test or chi-square test to determine associations between variables, with a p-value of <0.05 considered statistically significant.

RESULTS

The current study examines the clinical profiles of

elderly patients at a rural tertiary healthcare facility, paying particular attention to non-communicable diseases.

The study included 150 geriatric patients, with the majority (61.33%) aged between 60 and 70, 30.67% between 70 and 80, and 8.00% between 80 and 90. Gender distribution was evenly split, with 50% male and 50% female. Common complaints included chest pain with sweating (6.67%) and frequent urination with burning (6.00%), along with other issues like headaches, palpitations, and breathlessness. Regarding past medical history, 7.33% had diabetes, 20.67% had hypertension, and 13.33% had both, while 58.67% had no past conditions. Family history showed 10.67% reported paternal hypertension and 4.00% maternal diabetes. Addiction history revealed 7.33% consumed alcohol, and 8.00% smoked, but 84.67% had no addiction history. Appetite was normal in 85.33%, while 14.67% had reduced appetite.

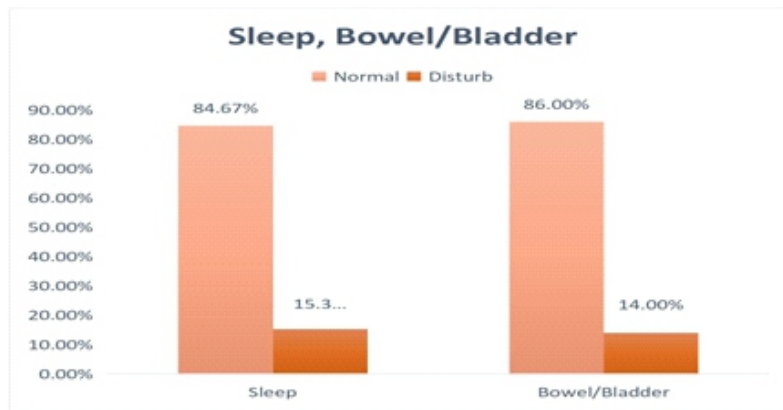


Figure 1: Graph for Sleep, Bowel/Bladder of Geriatric Patients

The waist circumference of geriatric patients was distributed across three ranges. The majority, 78.67% (118 patients), had a waist circumference between 80 and 100 cm. Another 7.33% (11 patients) had waist

measurements ranging from 101 to 120 cm, while 14% (21 patients) had waist circumferences between 121 and 140 cm. In total, the data encompassed all 150 patients, accounting for 100.00% of the study population.

Table 1: Blood Pressure of Geriatric Patients

Systolic BP	Count	Percentage	Diastolic BP	Count	Percentage
<=120	40	25.48%	<=80	39	24.84%
>120	110	70.06%	>80	111	70.70%
Total	150	100%	Total	150	100%

Among the 150 geriatric patients studied, 7.33% had pallor, while 92.00% had no data on their pallor status. Cardiovascular examination showed that 99.33% had normal heart sounds, with only 0.67% presenting abnormal findings. In terms of the central nervous system, 94.67% were conscious, and 5.33% were unconscious. Fasting blood sugar levels revealed that

39.33% had levels of 100 mg/dL or less, 58.00% had levels between 100 and 200 mg/dL, and 2.67% had levels between 200 and 300 mg/dL. Post-prandial blood sugar levels showed 0.67% had 100 mg/dL or less, 57.33% had levels between 100 and 200 mg/dL, 24.00% ranged from 200 to 300 mg/dL, and 18.00% had levels above 300 mg/dL. Random blood sugar levels indicated that

58.00% were between 100 and 200 mg/dL, 38.67% exceeded 300 mg/dL. The data represents the full population of 150 patients. ranged from 200 to 300 mg/dL, and 3.33%

Table 2: Glycated haemoglobin (HbA1c) of Geriatric Patients

Glycated haemoglobin (HbA1c)	Count (Percentage)
Normal (4.5 to 6.5)	90 (60.00%)
Good diabetic control (6.5 to 7.5)	4 (2.67%)
Fair control (7.5 to 9.1)	16 (10.67%)
Poor diabetic control	40 (26.67%)
Total	150 (100%)

Among the 150 geriatric patients, 66.00% had normal total cholesterol levels (125-225 mg/dL), while 34.00% had abnormal levels. For HDL, 85.33% had normal values (40-70 mg/dL), and 14.67% had

mal HDL levels. Urea levels showed 40.67% had normal levels (15-40 mg/dL), whereas 59.33% had abnormal levels. These figures represent the entire population of 150 patients.

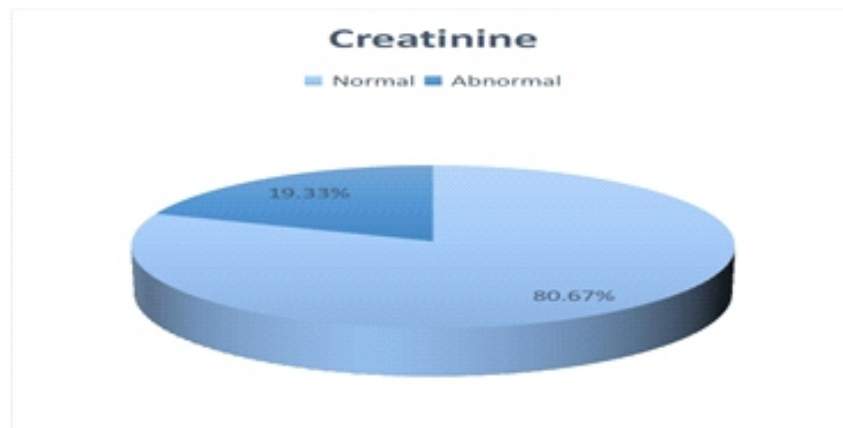


Figure 2: Graph for Creatinine of Geriatric

Table 3: Table for CTS can Brain of Geriatric Patients

CT Scan Brain	Count (Percentage)
Hyperdense area involving left MCA territory	4(2.67%)
Hyperdense area involving right MCA Territory	9(6.00%)
Hyperdense area involving Rt hemisphere with VIINERVE Nuclei Over pons region	1(0.67%)
Hypodense area involving Left IC	5(3.33%)
Hypodense area involving Lt hemisphere with VIINERVE Nuclei Over pons region	2(1.33%)
Hypodense area involving Right IC	5(3.33%)
NA	124(82.67%)
Total	150(100.00%)

Table 4: PS/BONE MARROW/CBC of Geriatric Patients

PS/BONEMARROW/CBC	Count (Percentage)
BM-myeloblast-18%,promyelocyte-13%,immaturebandformseen. TLC-1.2lac,Hb-7.8,Plt-50k	1 (0.67%)
TLC-1lac,Plt-30kHb-8.8BM->20%plasmacells seen along with lymphocytes and increased mega karyocytes	1 (0.67%)
TLC-1Lac,BM-Myeloblast-20%, Promyleocytes-13%,metamyelocytes, immature band form seen.	1 (0.67%)
TLC-1k,HB-9.5PLT-20kBM Hypocellularm arrow with	1 (0.67%)
BM-myeloblast-16%,promyelocyte-19%,immaturebandformseen.TLC-1.2Lac,Hb-7.8,Plt-85k	1 (0.67%)
TLC-1.8lac,HB-7.5,Plt-50kBM-Myleoblast>20%,immaturemyloeidseries' seen with basophillia	1 (0.67%)
TLC-1.5lac,Plt-30kHb-8.8.BM->20%plasmacellsseenalongwith lymphocytesandincreasedmegakaryocytes	1 (0.67%)
TLC-2.1lacHb-10.5, Plt-68k.BM-Myeloblast>20%,promyelocyte, metamyelocyte sseen	1 (0.67%)
TLC-2.2lacHb-8.5Plt-50k.BM-20%Myeloblasts, metamyelocytes25%,immature band form seen	1 (0.67%)
TLC-2lacHb-8.9Plt-50k.BM-25%Myeloblasts, metamyelocytes25%,immature band form seen with basophilia	1 (0.67%)
TLC-1.4lac,Plt-35kHb-7.8.BM->20%plasmacells seen along withlymphocytes and increased mega karyocytes	1 (0.67%)
TLC-2.1lacHb-6.9Plt-50k.BM-18%Myeloblasts, metamyelocytes20%,immature band form seen with basophillia	1 (0.67%)
TLC-2lacHb-7.5Plt-50k.BM-25%Myeloblasts, metamyelocytes25%,immature band form seen with basophillia	1 (0.67%)
TLC-1lac, Plt-30kHb-8.8.BM->20%plasmacells seen along withlymphocytes and increased mega karyocytes	1 (0.67%)
TLC-1.5k,HB-6.5PLT-27kBM-Hypocellularmarrowwith	1 (0.67%)
TLC-2.2lacHb-8.7Plt-74k.BM-26% Myeloblasts, Myelocytes-25%,immature band form seen	1 (0.67%)
TLC-2lacHb-10.5,Plt-68k.BM Myeloblast>20%, promyelocyte, meta myelocytes seen	1 (0.67%)
TLC-1.4lac,Plt-35kHb-8.4BM->20% plasmacells seen along with lymphocytes and increased megakaryocytes	1 (0.67%)
NA	131 (87.33%)
Total	150(100%)

Table 5: Table for EGS of Geriatric Patients

ECG	COUNT (Percentage)
Bradycardia	2 (1.33%)
Bradycardia ST Elevation in Leads 2,3 and aVF, QT prolongation	1(0.67%)
Bradycardia, Twaveinversion	2(1.33%)
NSR	12(8.00%)
ST Elevation in Leads 2,3 and a VF	14(9.33%)
ST Elevation in leads V1toV6	8(5.33%)
ST Elevation in V3toV4	5(3.33%)
Tachycardia	7(4.67%)
Twaveinversion	5(3.33%)
Twaveinversion, NSR	1(0.67%)
NA	93(62.00%)
Total	150 (100%)

Table 6: 2D Echo of Geriatric Patients

2D ECHO	Count (Percentage)
Anterior wall hypokinesia, LVEF<60%	2(1.33%)
Anterior wall hypokinesia, LVEF- 65%	1(0.67%)
Anterior wall hypokinesis	3(2.00%)
Concentric LVH	26(17.33%)
HFpEF	23(15.33%)
Inferior wall hypokinesia, LVEF<65%	8(5.33%)
Inferior wall hypokinesia, LVEF- 60%	8(5.33%)
Inferior wall hypokinesia, LVEF- 65%	3(2.00%)
Blank	76(50.67%)
Total	150(100%)

Table 7: USG of Geriatric Patients

USG	Count (Percentage)
Cervical Lymphadenopathy, HSM	2(1.33%)
Cervical Lymphadenopathy, Splenomegaly	3(2.00%)
Hepatosplenomegaly	1(0.67%)
Mild fatty changes	2(1.33%)
Mild fatty changes in liver	5(3.33%)
Mild hepatomegaly	3(2.00%)
Mild Hepatosplenomegaly	2(1.33%)
Mild spleen omegaly	5(3.33%)
Spleen omegaly	1(0.67%)
Spleen omegaly with cervical lymphadenopathy	1(0.67%)
NA	125(83.33%)
Total	150(100%)

Table 8: Diagnosis of Geriatric Patients

Diagnosis	Count (Percentages)
ACUTEISCHEMICSTROKE	8(5.33%)
Anterior wall STEMI	5(3.33%)
Antero lateral STEMI	2(1.33%)
Antero lateral walls TEMI	6(4.00%)
Aplastic Anemia	2(1.33%)
Chronic Myeloid Leukemia	11(7.33%)
DM	1(0.67%)
Dyslipidemia	23(15.33%)
Hemorrhagic Stroke	14(9.33%)
HYPERTENSION	26(17.33%)
Inferior wall STEMI	14(9.33%)
Ischemic stroke	4(2.67%)
Plasma Cell LEUKEMIA	5(3.33%)
Type2DM	29(19.33%)
Total	150(100%)

DISCUSSION

The study sheds light on the high prevalence of non-communicable diseases (NCDs) among the elderly, identifying diabetes mellitus and hypertension as the most prevalent conditions. With observed rates of 13.33% for diabetes and 20.67% for hypertension, the findings align closely with earlier research conducted in rural India. For example, the ICMR-INDIAB study reported comparable prevalence rates for these conditions in rural regions of Tamil Nadu, Maharashtra, Jharkhand, and Chandigarh. This consistency underscores the significant burden of NCDs in these areas, highlighting the need for targeted public health interventions [15,16].

The incidence of stroke and cardiovascular diseases aligns with national and global patterns. Cardiovascular diseases, including stroke, continue to be a major cause of death worldwide, especially affecting rural populations in low and middle income countries with limited access to preventive healthcare. Many countries, such as India, are experiencing a shift from infectious diseases to chronic non-communicable diseases, with cardiovascular conditions playing a significant role in this transition [17,18].

The study emphasizes the significant economic impact of non-communicable diseases (NCDs). Treating NCDs places a heavy financial strain, especially in low and middle income countries with limited healthcare resources. In nations like India, where public health funding is scarce and out-of-pocket healthcare costs are high, this burden is particularly acute. The study highlights the urgent

need for effective strategies to reduce and manage the financial impact of NCDs. [19,20].

Lifestyle factors contributing to the prevalence of NCDs, such as smoking, poor diet, and physical inactivity, are also examined in the study. These factors are consistent with the World Health Organization's identification of key contributors to the global NCD epidemic. The findings stress the importance of lifestyle modifications and preventive measures, especially in rural areas where access to healthcare facilities and health awareness may be limited. Addressing these lifestyle factors through targeted public health campaigns and community based interventions is crucial for reducing the prevalence of NCDs [21,22,23].

An intriguing aspect of the study is its examination of gender distribution among elderly patients. Contrary to previous research suggesting a higher prevalence of conditions like hypertension in post menopausal women, the study found an equal distribution of NCDs between males and females. This discrepancy highlights the need for further gender specific research in rural healthcare settings to better understand these patterns and address any underlying issues. Such research could provide valuable insights into how gender influences the prevalence and management of NCDs, leading to more tailored and effective healthcare strategies [24,25].

This study provides comprehensive insights into the prevalence and impact of NCDs among the elderly in rural areas. The consistency of the findings with prior research and global trends emphasizes the substantial

burden of these diseases. The study highlights the need for targeted interventions to address the rising prevalence of NCDs, the economic implications of their treatment and the importance of lifestyle changes in managing these conditions. Further research, particularly focusing on gender specific aspects and rural healthcare strategies could enhance understanding and contribute to more effective healthcare solutions for managing NCDs in under served populations.

CONCLUSION

The study highlights the high prevalence of non-communicable diseases (NCDs) among the elderly in rural India, with diabetes (13.33%) and hypertension (20.67%) being most common. It notes an increasing burden of stroke and cardiovascular diseases, consistent with global trends. The economic impact is severe due to high treatment costs in low-income areas. Lifestyle factors like smoking and poor diet are significant contributors. Gender distribution shows no significant difference indicating a need for further gender specific research. The study of 150 patients underscores the need for targeted interventions and further research.

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