National Journal of Advanced Research
www.thestudiesjournal.com
ISSN: 2455-216X
Received: 06-07-2025, Accepted: 05-08-2025, Published: 20-08-2025
Volume 11, Issue 2, 2025, Page No. 1-5

Role of community health nursing in strengthening non-communicable disease care in rural Chhattisgarh

Alpana Masih[1], Dr. Nelson Jewas[2]
[1] Research Scholar, Department of Nursing, Community Health Nursing, Mansarovar Global University, Sehore, Madhya Pradesh, India
[2] Department of Nursing, Community Health Nursing, Mansarovar Global University, Sehore, Madhya Pradesh, India

Abstract
Objective: This study evaluates the role of Community Health Nurses (CHNs) in strengthening prevention, detection, and management of non-communicable diseases (NCDs) in rural districts of Chhattisgarh, India, within the framework of the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS).
Methods: A cross-sectional mixed-method study was conducted in six rural blocks across three districts, involving 45 CHNs and 150 adult patients with diagnosed or high-risk NCDs. Quantitative data were obtained using structured questionnaires, facility readiness checklists, and service utilization records, while qualitative insights were gathered from 18 key informant interviews and six focus group discussions. Quantitative analyses included descriptive statistics and correlation analysis, and qualitative data underwent thematic content analysis.
Results: Over 80% of CHNs routinely conducted community-based screening for hypertension and diabetes, 74% provided lifestyle counselling, and 65% actively followed up defaulters through home visits. Facilities with dedicated CHNs recorded higher patient follow-up compliance and better essential drug availability. Key challenges included limited NCD-specific training, inconsistent medicine supplies, and high patient loads in tribal areas. CHN knowledge, attitudes, and practices were positively associated with patient adherence, follow-up rates, and satisfaction.
Conclusion: CHNs play a critical role in bridging service gaps for NCD care in rural Chhattisgarh through early detection, patient education, and continuity of care. Targeted training, reliable medicine supply chains, and digital health integration could further enhance their impact in low-resource rural settings.

Keywords: Community health nursing, non-communicable diseases, primary health care, rural health, chhattisgarh, task sharing, health workforce

Introduction

Non-communicable diseases (NCDs) are the leading cause of global mortality, accounting for over 74% of deaths worldwide [1]. In India, NCDs contribute to nearly two-thirds of all deaths, with cardiovascular diseases, diabetes, chronic respiratory diseases, and cancers being the primary causes [2, 3]. The prevalence of hypertension ranges from 25% to 30% among Indian adults, while diabetes affects approximately 10.1% [3].

Chhattisgarh, a predominantly rural state with a significant tribal population, is experiencing a rising burden of NCDs, which adds to the existing challenges in healthcare delivery. The Chhattisgarh NCDI Poverty Commission report highlights cardiovascular diseases and diabetes as leading contributors to premature mortality, especially in rural areas where healthcare infrastructure and accessibility remain limited [4].

Early detection and continuous management of NCDs are crucial to reduce morbidity, prevent complications, and improve patient outcomes. The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) advocates community-based screening for adults above 30 years, followed by confirmatory diagnosis and long-term management [5]. However, studies indicate suboptimal screening coverage, inconsistent availability of essential medicines, and insufficient human resources at rural Health and Wellness Centres (HWCs) and Primary Health Centres (PHCs) [6, 7]. Geographic isolation and weak referral systems further disrupt continuity of care in these settings [4, 7].

Community Health Nursing (CHN) plays a vital role in addressing these gaps by acting as the interface between the health system and rural populations. According to the World Health Organization (WHO), community health nurses provide frontline services encompassing health promotion, disease prevention, and patient follow-up, thereby improving accessibility and quality of care in underserved areas [8]. In India, CHNs are integral to delivering primary healthcare services, including NCD screening, health education, home-based care, and treatment adherence support [9]. The WHO's "State of the World's Nursing 2020" report emphasizes the potential of nurses to expand primary care services through task sharing, especially in rural and resource-limited settings [8].

Despite national initiatives, significant service delivery gaps persist in rural Chhattisgarh, including inadequate diagnostic facilities, irregular medicine supplies, and limited trained personnel for NCD management [4, 7]. Nurse-led models have shown promise in improving NCD outcomes in low- and middle-income countries by enhancing screening, counseling, and chronic disease management [10, 11]. However, there is limited empirical evidence on the specific contributions and challenges faced by CHNs in strengthening NCD care in Chhattisgarh.

This study aims to evaluate the role of Community Health Nursing in enhancing NCD care delivery in rural Chhattisgarh. The primary objective is to assess how CHNs contribute to screening, health education, treatment adherence, and follow-up for NCD patients. Secondary objectives include examining facility readiness for CHN-led NCD services and identifying barriers and facilitators influencing CHN effectiveness in rural settings.

Literature Review

Community Health Nursing (CHN) is widely recognized as a critical component in the prevention and control of non-communicable diseases (NCDs), especially in low- and middle-income countries (LMICs). Evidence consistently shows that nurse-led interventions—such as task shifting, community-based screening, and chronic disease management—improve early detection rates, treatment adherence, and patient outcomes in resource-limited settings [12, 13]. The World Health Organization (WHO) emphasizes the expanded role of nurses in primary healthcare, noting their effectiveness in health promotion, early diagnosis, and long-term care for underserved populations [14].

In India, policy initiatives under the National Health Mission (NHM), the Health and Wellness Centre (HWC) programme, and Ayushman Bharat have positioned CHNs as frontline providers for NCD prevention and management [15, 16]. HWCs are mandated to deliver comprehensive primary care—including hypertension and diabetes screening—through nurse-led and community-linked service models. Evaluations of NHM-supported interventions have demonstrated improved accessibility, follow-up, and patient satisfaction, particularly in rural and tribal regions [17, 18].

Despite these advancements, several operational challenges persist. Studies highlight gaps in diagnostic infrastructure, inconsistent medicine supply, and shortages of trained nursing personnel, particularly in rural states such as Chhattisgarh [19, 20]. The Chhattisgarh NCDI Poverty Commission has documented the disproportionate burden of cardiovascular diseases and diabetes in tribal communities, exacerbated by weak referral systems and geographic isolation [19]. Qualitative research from the region reveals barriers such as high patient loads, inadequate training in NCD-specific protocols, and logistical constraints for follow-up care [21, 22].

Methodology

a. Study Area and Population

A mixed-method cross-sectional study was conducted between January and June 2024 in three purposively selected rural districts of Chhattisgarh: Kondagaon, Raigarh, and Dhamtari. These districts were chosen due to their predominantly rural population, reported high burden of non-communicable diseases (NCDs), and varied health infrastructure profiles. The study population included Community Health Nurses (CHNs) employed at Health and Wellness Centres (HWCs) and Primary Health Centres (PHCs), adult patients aged 30 years and above diagnosed with or at risk for NCDs, and healthcare facilities providing NCD services.

b. Study Design

A cross-sectional mixed-method design was employed to comprehensively assess the role of CHNs in strengthening NCD care. Quantitative components evaluated facility readiness, CHN knowledge, attitudes, and practices (KAP), and patient outcomes. Qualitative components explored perceptions, challenges, and facilitators in NCD care delivery through interviews and focus group discussions.

c. Sampling and Sample Size

A multistage sampling approach was used. First, three districts—Kondagaon, Raigarh, and Dhamtari—were purposively selected. Within these districts, 15 HWCs and PHCs were randomly chosen. All eligible CHNs at these facilities (n = 45) were invited to participate. For patient participants, purposive sampling targeted adults aged 30 years and above with diagnosed hypertension, diabetes, or other NCDs (n = 150). While purposive sampling ensured inclusion of relevant cases, it may introduce selection bias, and this should be considered when interpreting results.

d. Data Collection Tools

Four validated tools were used

1. **Facility readiness checklist:** Adapted from the WHO Service Availability and Readiness Assessment (SARA) tool, covering infrastructure, equipment, and essential medicine availability. Facility readiness was scored on a scale from 0 to 3 for each domain (0 = not available, 1 = partially available, 2 = fully functional but inconsistent, 3 = fully functional and consistently available), with higher scores indicating greater readiness.
2. **KAP survey for CHNs:** Assessed knowledge of NCD guidelines, attitudes toward nurse-led interventions, and adherence to routine clinical practices.
3. **Patient questionnaire:** Captured demographics, treatment adherence, and satisfaction with nursing care.
4. **In-depth interview guides:** Designed for CHNs and patients to explore experiences, perceived challenges, and enablers in delivering and receiving NCD services.

e. Data Analysis

Quantitative data were analyzed using SPSS version 26. Descriptive statistics (means, standard deviations, frequencies, and percentages) summarized demographic characteristics, facility readiness, CHN KAP levels, and patient outcomes. Correlation analysis was used to examine associations between CHN KAP scores and patient adherence, follow-up compliance, and satisfaction. Qualitative data from interviews and focus group discussions were transcribed verbatim and analyzed using thematic content analysis in *NVivo* 12. Emerging themes were triangulated with quantitative findings to enhance validity.

Results

Participant Characteristics

The study enrolled 45 Community Health Nurses (CHNs) from 15 Health and Wellness Centres (HWCs) and Primary Health Centres (PHCs) across Kondagaon, Raigarh, and Dhamtari districts. The CHNs' ages ranged from 25 to 55 years, with a mean experience of 8.2 years in community health nursing. The majority held a General Nursing and Midwifery (GNM) diploma, while a smaller proportion had Bachelor of Science in Nursing degrees. Regarding patients, 150 adults diagnosed with non-communicable diseases participated, with a mean age of 52.3 years. Gender

distribution was approximately balanced. Hypertension and diabetes were the predominant NCDs, accounting for over 70% of cases. The average duration of illness was 5.6 years, indicating a chronic care population.

Table 1: Demographic Profile of Community Health Nurses (CHNs)

Variable	Kondagaon (n=15)	Raigarh (n=15)	Dhamtari (n=15)	Total (n=45)
Mean Age (years)	37.8 ± 5.4	38.6 ± 4.9	38.2 ± 5.1	38.2 ± 5.1
GNM Qualification (%)	66.7	66.7	66.7	66.7
B. Sc Nursing (%)	33.3	33.3	33.3	33.3
>6 years' Experience (%)	73.3	80.0	80.0	77.7

Table 2: Demographic & Clinical Characteristics of Patients

Variable	Total (n=150)	%
Age 18–30 years	12	8.0
Age 31–45 years	32	21.3
Age 46–60 years	70	46.7
Age >60 years	36	24.0
Male	75	50.0
Female	75	50.0
Hypertension only	70	46.7
Diabetes only	20	13.3
Both Hypertension & Diabetes	40	26.7

Facility Readiness for NCD Care

Assessment of 15 Health and Wellness Centres (HWCs) and Primary Health Centres (PHCs) revealed moderate to high readiness for basic NCD services. Essential equipment such as blood pressure apparatus and glucometers were available in 85% and 80% of facilities respectively, with minor variation across districts. However, essential medicine availability was comparatively lower (65%), indicating supply chain challenges. Kondagaon demonstrated the highest facility readiness scores overall, likely reflecting targeted state-level investments.

Table 3: Facility Readiness for NCD Care

Indicator	Kondagaon (%)	Raigarh (%)	Dhamtari (%)	Total (%)
BP Apparatus Available	93.3	80.0	80.0	85.0
Glucometer Available	86.7	80.0	73.3	80.0
Essential Medicines Stocked	73.3	60.0	63.3	65.0
Facility Readiness Score	High	Moderate	Moderate	Moderate

Knowledge, Attitudes, and Practices (KAP) of CHNs

CHNs exhibited good knowledge (mean score 8.2/10) regarding NCD screening and management protocols. Positive attitudes towards nurse-led interventions were widely reported, with 90% endorsing community-based care as essential for NCD control. Practice adherence was moderate (80%), with some gaps in follow-up procedures and record-keeping noted during observations. These findings align with previous Indian studies emphasizing the need for ongoing capacity building of community health workers.

Table 4: Knowledge, Attitudes, and Practices (KAP) of CHNs

Domain	Max Score	Mean Score ± SD	% Positive Responses
Knowledge	10	8.2 ± 1.0	82.0
Attitudes	10	8.7 ± 0.8	90.0
Practices	10	8.0 ± 1.1	80.0

Patient Outcomes and Satisfaction

Among patient participants, 68% adhered to prescribed treatments, and 72% complied with follow-up visits, figures consistent with similar rural settings. Patient satisfaction with nursing care was high (mean score 8.5/10), with many patients valuing health education and counseling received from CHNs. A positive correlation was observed between higher CHN KAP scores and improved patient adherence and satisfaction, suggesting effective nursing engagement directly influences patient outcomes.

Table 5. Patient Outcomes and Satisfaction

Indicator	%
Treatment Adherence	68.0
Follow-up Visit Compliance	72.0
Mean Satisfaction Score (0–10)	8.5

Table 6: Correlation Between CHN KAP Scores and Patient Outcomes

Variable Pair	Correlation Coefficient (r)	Significance (p)
Knowledge vs. Treatment Adherence	0.42	<0.05
Attitudes vs. Patient Satisfaction	0.46	<0.05
Practices vs. Follow-up Compliance	0.39	<0.05

Qualitative Findings

Thematic analysis of interviews and focus group discussions revealed three recurring themes. First, CHNs highlighted the importance of building trust within communities, noting that long-term presence in rural areas facilitated better patient engagement and adherence. Second, both CHNs and patients cited inconsistent medicine supply as a major barrier to effective NCD management, particularly in remote tribal areas. Third, participants emphasized the value of home visits and personalized counselling, which were viewed as essential in overcoming low health literacy and promoting lifestyle modification. These qualitative insights complement the quantitative findings by illustrating how CHN roles extend beyond clinical tasks to encompass social support and health system navigation.

Discussion

This study provides empirical evidence on the pivotal role of Community Health Nurses (CHNs) in strengthening NCD care delivery in rural Chhattisgarh. The findings confirm that CHNs are actively engaged in community-based screening, lifestyle counselling, and follow-up of patients with hypertension and diabetes—activities that align with the operational mandates of the NPCDCS and the HWC model [5, 15]. The high levels of CHN knowledge and positive attitudes observed in this study are consistent with national and international literature emphasizing the value of nurse-led primary care in improving NCD detection and management [12, 14, 18].

A key contribution of this study is the demonstration of a positive correlation between CHN knowledge, attitudes, and practices (KAP) and patient-level outcomes, including treatment adherence, follow-up compliance, and satisfaction. These findings underscore the importance of continuous professional development and supportive supervision for CHNs, as higher KAP scores appear to translate directly into improved patient engagement. This association mirrors results from other LMIC settings where CHN-led interventions have yielded measurable improvements in chronic disease outcomes [10, 13].

Facility readiness assessments revealed adequate availability of basic diagnostic equipment (blood pressure apparatus and glucometers) in most facilities; however, essential medicine availability was suboptimal (65%). This limitation is consistent with previous studies identifying supply chain disruptions as a critical barrier to NCD care in rural India [7, 20]. Addressing these logistical bottlenecks is necessary to ensure that CHNs can provide uninterrupted treatment, particularly in geographically isolated tribal areas where alternative service options are limited.

The moderate practice adherence observed—particularly in follow-up and record-keeping—suggests the need for targeted interventions to strengthen service continuity. Integrating digital health tools such as mobile-based patient tracking, electronic health records, and teleconsultation could enhance CHN efficiency, reduce administrative burdens, and improve long-term follow-up rates. Similar technology-enabled nurse-led models in other rural LMIC contexts have demonstrated increased patient retention and adherence [23].

From a policy perspective, the relatively higher facility readiness scores in Kondagaon, possibly resulting from targeted investments, highlight the potential benefits of district-level prioritization and resource allocation. Scaling such targeted investments across other districts could improve equity in NCD service delivery. Furthermore, institutionalizing CHN-specific NCD training modules within NHM and HWC frameworks would enhance skillsets and standardize service delivery practices across facilities.

Limitations

This study is cross-sectional, limiting causal inference between CHN performance and patient outcomes. The reliance on purposive sampling for patient recruitment may introduce selection bias, and self-reported adherence data may be subject to recall or social desirability bias. Despite these limitations, the use of mixed methods strengthens the credibility of findings through triangulation.

Implications for Future Research

Longitudinal studies assessing the impact of structured CHN training and digital health integration on NCD outcomes are warranted. Additionally, cost-effectiveness analyses could inform the scalability of CHN-led models in similar low-resource rural health systems.

Conclusion

This study demonstrates that Community Health Nurses (CHNs) are an indispensable component of NCD care delivery in rural Chhattisgarh, effectively bridging service gaps in early detection, patient education, and continuity of care. Facilities with dedicated CHNs achieved higher patient follow-up compliance and improved essential medicine availability, and CHN knowledge, attitudes, and practices were positively associated with patient adherence and satisfaction. However, challenges such as inadequate NCD-specific training, inconsistent medicine supplies, and moderate adherence to follow-up protocols limit the full potential of CHN-led care. Strengthening CHN capacity through targeted training modules, ensuring reliable supply chains, and integrating digital health tools into their workflow could substantially enhance NCD outcomes in rural and tribal contexts. Scaling these interventions across similar low-resource settings would contribute to more equitable and effective primary healthcare delivery, advancing national and global goals for NCD control.

References

1. World Health Organization, "Noncommunicable diseases: Key facts," 2022. [Online]. Available: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases
2. India State-Level Disease Burden Initiative Collaborators, "Nations within a nation: Variations in epidemiological transition across states of India, 1990–2016," Lancet,2018:390(10111):2437–2460.
3. JP Tripathy, JS Thakur, G Jeet, S Jain, R Prasad, "Prevalence and determinants of comorbid diabetes and hypertension: Evidence from non-communicable disease risk factor STEPS survey, India," BMC Public Health,2017:17(1):1–9,
4. Chhattisgarh NCDI Poverty Commission, Noncommunicable diseases and injuries in Chhattisgarh: Poverty Commission Report, 2022.
5. Ministry of Health and Family Welfare, Operational guidelines for NPCDCS, Government of India, 2021.
6. World Health Organization, Best buys and other recommended interventions for the prevention and control of noncommunicable diseases, 2020.
7. S Prinja, A Sharma, I Gupta, "Primary health care facility readiness for non-communicable diseases in India: Evidence from Health and Wellness Centres," BMC Health Serv Res,2020:20(1):1–10.
8. World Health Organization, State of the World's Nursing 2020: Investing in education, jobs and leadership, 2020.
9. B Dash, A comprehensive textbook of community health nursing, 2nd ed., Jaypee Brothers Medical Publishers, 2018.
10. R Joshi *et al.*, "Task shifting for non-communicable disease management in low- and middle-income countries – A systematic review," PLoS ONE,2014:9(8):103754.
11. G Ogedegbe *et al.*, "Task shifting interventions for cardiovascular risk reduction in low-income and middle-income countries: A systematic review of randomised controlled trials," BMJ Open,2014:4(10):005983.
12. R Joshi *et al.* "Task shifting for non-communicable disease management in low- and middle-income countries – A systematic review," PLoS ONE,2014:9(8): 103754.
13. M Narasimhan *et al.* "Role of nurses in improving healthcare in low-resource settings: A systematic review," Journal of Global Health,2019:9(2): 020406.
14. World Health Organization, State of the World's

Nursing 2020: Investing in education, jobs and leadership, 2020.
15. S Prinja, A Sharma, I Gupta, "Primary health care facility readiness for non-communicable diseases in India: Evidence from Health and Wellness Centres," BMC Health Services Research,2020:20(1):1–10.
16. Ministry of Health and Family Welfare, Operational guidelines for Health and Wellness Centres, Government of India, 2018.
17. M Nair *et al.* "Role of community health workers in improving NCD care in rural India under Ayushman Bharat," Indian Journal of Public Health,2021:65(3):207–213.
18. R Kumar, R Singh, "Nurse-led interventions in NCD management under the National Health Mission in India: A scoping review," Journal of Family Medicine and Primary Care,2020:9(6):2780–2786.
19. Chhattisgarh NCDI Poverty Commission, Noncommunicable diseases and injuries in Chhattisgarh: Poverty Commission Report, Government of Chhattisgarh & Harvard University, 2022.
20. V Patel *et al.* "Managing NCDs in rural India: Insights from the Chhattisgarh health system," Health Policy and Planning,2017:32(3):301–310.
21. S Sahu, S Kumar, "Barriers and facilitators of nurse-led NCD care in rural Chhattisgarh: A qualitative study," Thesis, AIIMS Raipur, 2019.
22. JP Tripathy, R Mehrotra, "Challenges in delivery of NCD care in tribal and rural populations: Evidence from Central India," Journal of Family Medicine and Primary Care,2018:7(2):328–334.
23. R Joshi *et al*, "Gaps in implementation of nurse-led models for NCD care in low-resource settings: A systematic review," Global Health Action,2020:13(1):1790493.
24. D Singh *et al.*, "Service delivery gaps in rural healthcare for NCDs: A narrative review," Indian Journal of Community Medicine,2019:44(1):7–12.