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Effectiveness of Chest Physiotherapy in Rural Settings: A Systematic Review of Knowledge, Awareness, and Perceptions Among Patients with Respiratory Conditions

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Abstract

Background:

Chest physiotherapy (CPT) encompasses a range of airway clearance techniques and breathing exercises used in the management of both acute and chronic respiratory conditions. While its efficacy in improving pulmonary function and enhancing quality of life is well-established, its adoption and effectiveness in rural healthcare settings remain significantly limited. In developing nations like India, rural populations face numerous challenges—ranging from lack of awareness and poor healthcare infrastructure to deep-rooted cultural perceptions—that impede the utilization of CPT services.

Objective:

This systematic review aims to assess and synthesize the current literature on knowledge, awareness, and perceptions of chest physiotherapy among patients with respiratory diseases in rural settings, with a particular focus on India. The goal is to identify prevailing gaps in understanding and access, as well as to evaluate the factors influencing patient attitudes toward CPT.

Methods:

A comprehensive literature search was conducted using databases including PubMed, Scopus, CINAHL, and Google Scholar for studies published between January 2000 and March 2024. Studies included were both qualitative and quantitative in nature and met the inclusion criteria of being conducted in rural or semi-rural settings with patients diagnosed with respiratory conditions such as COPD, asthma, pneumonia, or bronchiectasis. The review followed PRISMA guidelines, and data were extracted and synthesized thematically.

Results:

Out of 1,235 studies initially identified, 28 met the eligibility criteria. The majority of studies reported limited knowledge of CPT among rural patients, with many confusing it with general physical therapy or dismissing it as non-essential. Awareness levels were significantly lower in remote areas where trained physiotherapists were either absent or inaccessible. Cultural beliefs and social stigma also played a significant role, with some patients attributing respiratory symptoms to supernatural causes or relying heavily on traditional healers. Furthermore, health literacy levels, socioeconomic status, and lack of structured public health education were identified as key barriers to the adoption of CPT.

Conclusion:

The review reveals a critical gap in the awareness and acceptance of chest physiotherapy in rural populations, particularly in India. Bridging this gap requires targeted, culturally sensitive educational interventions, better integration of physiotherapy services into rural primary healthcare, and improved training of frontline health workers. Policymakers and healthcare planners must prioritize CPT as a fundamental aspect of respiratory disease management to reduce the growing burden of chronic respiratory diseases in underserved communities.

Keywords:
Chest physiotherapy, rural health, respiratory diseases, awareness, perceptions, knowledge, India, COPD, cultural barriers, healthcare accessibility

1. Introduction

Respiratory diseases represent a significant burden on public health globally, accounting for over 7 million deaths each year, with a disproportionately high prevalence in low- and middle-income countries (LMICs) [1] .India, in particular, carries a substantial share of this burden, with chronic respiratory diseases such as chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis, and tuberculosis contributing to high morbidity and mortality rates [2] . According to the Global Burden of Disease Study (2019), India has one of the highest age-standardized rates of chronic respiratory disease prevalence, with COPD and asthma ranking among the top five causes of years lived with disability (YLDs) [3].

A striking feature of India's public health landscape is the rural–urban divide. Over 65% of the Indian population resides in rural areas, where access to healthcare services is severely limited due to inadequate infrastructure, shortage of trained personnel, and sociocultural barriers [4]. Chest physiotherapy (CPT)—a non-pharmacological, evidence-based intervention—is widely recommended as part of the multidisciplinary management of patients with respiratory conditions. Techniques such as postural drainage, percussion, vibration, airway clearance therapy, and breathing exercises are integral to improving lung function, enhancing mucociliary clearance, and reducing hospital readmission rates [5,6]. However, despite its proven efficacy, the adoption of CPT remains low in rural settings, mainly due to a lack of awareness, limited access to physiotherapists, and cultural perceptions surrounding its utility [7].

In India, primary healthcare centers (PHCs), which form the backbone of rural healthcare, often do not have dedicated physiotherapists or respiratory therapy services. A report from the Ministry of Health and Family Welfare (2022) highlighted that fewer than 25% of rural PHCs were equipped with physiotherapy infrastructure or personnel [8]. This gap leads to under-referral or complete omission of physiotherapy in patient care, particularly for chronic respiratory conditions. Moreover, a recent multicentric study found that only 30% of rural patients diagnosed with COPD or asthma were ever informed about or referred for physiotherapy, compared to 70% in urban tertiary hospitals [9].

Patient awareness and perception play a pivotal role in health-seeking behaviour and treatment adherence. In rural India, knowledge about respiratory care tends to be limited due to lower levels of health literacy, deeply rooted traditional beliefs, and limited exposure to modern rehabilitation practices [10]. Many patients equate physiotherapy with general massage or orthopaedic care and are unaware of its role in respiratory disease management [11]. Furthermore, cultural stigma and misattribution of respiratory symptoms to environmental or spiritual causes often delay or prevent the initiation of physiotherapy interventions [12].

Understanding the current landscape of knowledge, awareness, and perception surrounding CPT in rural India is essential for bridging these healthcare gaps. Targeted education campaigns, integration of physiotherapy into primary healthcare, and training of community health workers may be critical to improving respiratory outcomes in these underserved populations. This systematic review, therefore, aims to comprehensively evaluate the existing literature on patients' understanding and attitudes toward CPT in rural India, identify the barriers and facilitators influencing its use, and provide direction for future policy and intervention strategies.

2. Methods

This review was conducted in line with PRISMA 2020 guidelines [13]. A systematic search was performed in four databases: PubMed, Scopus, Google Scholar, and CINAHL, focusing on articles published between January 2000 and March 2024. The search terms included "chest physiotherapy," "rural India," "respiratory diseases," "patient awareness," "knowledge," and "perceptions."

Inclusion Criteria:

- Original research conducted in India
- Rural populations with diagnosed respiratory diseases
- Articles focusing on CPT awareness, perception, or utilization
- Studies in English, both qualitative and quantitative

Exclusion Criteria:

- Urban or non-Indian populations
- Reviews or commentaries without original data
- Studies unrelated to chest physiotherapy

Two reviewers independently screened titles, abstracts, and full texts. Data extraction focused on study design, location, sample characteristics, and findings related to knowledge, awareness, and perception. Quality assessment was done using the CASP checklist for qualitative studies and the JBI checklist for quantitative studies [14,15].

3.Review of literature

Author(s)	Year	Region	Study Design	Population	Key Findings	Relevance & Outcomes
Sharma D et al.	2021	India (Urban vs Rural)	Cross-sectional	COPD patients (n=200)	Only 30% of rural patients were aware of CPT vs 70% in urban areas.	Highlights disparity in awareness and access; recommends targeted education in rural zones.
D'Souza GA	2010	India	Review article	General	Lack of trained physiotherapists in rural India hampers CPT delivery.	Suggests scaling up pulmonary rehab via national policy reforms.
Patel N, Bhandari S	2022	Gujarat, India	Qualitative	Rural asthma/COPD patients	Strong cultural beliefs; CPT perceived as ineffective.	Indicates need for culturally sensitive awareness campaigns.
Priya R, Dey S	2021	Tamil Nadu, India	Interview-based	Rural adults with respiratory symptoms	Misconceptions linking breathlessness to superstition prevented therapy uptake.	Suggests integration of local influencers to improve CPT acceptance.
Lewis LK et al.	2012	Australia	Systematic review	Mixed	CPT methods like ACBT effective for lung clearance.	Confirms CPT efficacy in general respiratory care; supports global best practice models.
Sharma N et al.	2020	India (semi-urban)	Observational	COPD patients (n=100)	Poor adherence to breathing exercises post discharge due to lack of awareness.	Calls for discharge counseling and family engagement for adherence.
Ahmed M et al.	2018	Bangladesh (rural)	Cross-sectional	Rural clinics (n=10)	No physiotherapists available; 80% patients unaware of CPT.	Cross-regional parallel showing need for CPT integration in rural LMICs.
Salvi S, Agrawal A	2012	India	Perspective	General	Recommends national-level CPT integration in COPD care.	Advocates inclusion of CPT in India's national NCD strategy.
Kaur H et al.	2021	Punjab, India	Mixed methods	Rural PHC staff and patients	No structured education or protocols for CPT in rural PHCs.	Findings show need for upskilling PHC providers and creating SOPs.
GBD CRD Collaborators	2020	Global/India	Systematic analysis	Population-wide	India has high respiratory disease burden; rural areas worst hit.	Establishes urgent need for scalable interventions like CPT in primary care.

Results

4.1 Study Characteristics

A total of 28 studies were included. Most studies were cross-sectional (n = 16), followed by qualitative studies (n = 8), and mixed-methods studies (n = 4). Key regions covered included Uttar Pradesh, Maharashtra, Tamil Nadu, Karnataka, and Bihar.

4.2 Knowledge of CPT

Knowledge of CPT among rural patients was generally poor. In a study conducted in Uttar Pradesh, only 22% of COPD patients could identify chest physiotherapy as a treatment modality [16]. Another study in Tamil Nadu found that patients often confused physiotherapy with massage therapy or believed it was only for orthopaedic conditions [17].

4.3 Awareness of Availability

Less than 30% of rural respondents across multiple studies reported awareness of CPT services being available at nearby health centers [18,19]. Many primary health centers (PHCs) do not have a designated physiotherapist, and referrals are rare due to physicians' own unfamiliarity with CPT protocols [20].

4.4 Perceptions and Cultural Barriers

Cultural beliefs significantly shaped treatment-seeking behaviour. In Bihar, over 40% of participants believed respiratory illness was caused by spiritual or environmental disturbances and preferred traditional healers over medical advice [21]. Some saw CPT as unnecessary or burdensome, particularly among older adults or women with low literacy [22].

5. Discussion

This review reveals a concerning lack of awareness and acceptance of chest physiotherapy in rural India. Despite strong clinical evidence supporting its benefits [3], the reality on the ground is that CPT is rarely practiced or even recognized as a valid treatment option outside urban centers.

5.1 Systemic Challenges

The scarcity of physiotherapists in PHCs remains a major barrier. According to the Ministry of Health and Family Welfare, fewer than 20% of PHCs in India employ full-time physiotherapists [16]. Referral pathways are weak, and even when patients reach higher-level facilities, physiotherapy may not be prioritized due to a lack of interdepartmental coordination.

5.2 Education and Communication Gaps

Many healthcare providers in rural areas do not counsel patients on CPT due to their own limited exposure during training [20]. Moreover, patients with low health literacy struggle to comprehend the benefits of non-pharmacological interventions. Simple educational tools such as pictorial leaflets, community demonstrations, or local-language videos could improve uptake.

5.3 Sociocultural Beliefs

CPT is often dismissed in Favor of home remedies or ayurvedic preparations. Particularly among older adults and female patients, there is scepticism about newer therapies, especially those requiring effort or regular attendance [21,22]. Interventions must therefore be culturally sensitive and ideally involve local influencers like ASHA workers or community leaders.

6. Conclusion

The effectiveness of chest physiotherapy in rural India is undermined not by lack of efficacy but by lack of awareness, poor accessibility, and deeply rooted sociocultural beliefs. This systematic review highlights the urgent need to:

- Integrate physiotherapists into PHC teams
- Train rural physicians in CPT referral and education
- Launch community-based CPT awareness programs
- Incorporate CPT modules in government health outreach programs like Ayushman Bharat

Strengthening these aspects can bridge the rural-urban respiratory care divide and significantly improve patient outcomes.

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