ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24OCT028

Pulmonary Rehabilitation Services and Chest Physiotherapy in India: A Review in 2024

Dr. Abhinav Choubey
Career Institute of Medical Sciences Bhopal

Abstract:- Pulmonary rehabilitation (PR) and chest physiotherapy are vital components in the management of chronic respiratory diseases, particularly in India, where the prevalence of conditions such as chronic obstructive pulmonary disease (COPD), interstitial lung disease (ILD), asthma, and post-tuberculosis sequelae is rising. Pulmonary rehabilitation is a comprehensive, multidisciplinary intervention combining exercise training, education, and psychosocial support, aimed at improving patients' quality of life and reducing hospital admissions. Chest physiotherapy focuses on enhancing lung function and airway clearance through techniques like postural drainage, percussion, vibration, and breathing exercises. Despite the recognized benefits, these services remain underutilized in India, primarily due to a lack of awareness, limited infrastructure, and financial constraints. This review highlights the current state of PR and chest physiotherapy in India, comparing it with global practices, identifying the challenges to access, and offering strategies to expand and improve services, particularly in rural areas. Expanding home-based rehabilitation models and incorporating telemedicine could bridge the service gap, while strengthening healthcare provider training and policy integration may enhance accessibility and affordability.

I. INTRODUCTION

➢ *Pulmonary Rehabilitation Services and Chest Physiotherapy in India: A Review in 2024 Introduction*

Pulmonary rehabilitation (PR) and chest physiotherapy are critical components in the management of chronic respiratory diseases, aimed at improving lung function, physical conditioning, and quality of life. In India, with the rising burden of conditions such as chronic obstructive pulmonary disease (COPD), interstitial lung disease (ILD), asthma, and post- tuberculosis (TB) lung disorders, the demand for PR and chest physiotherapy has increased significantly. However, despite their proven benefits, access to these services remains limited and underdeveloped, particularly in rural and semi-urban areas. This review explores the current status of pulmonary rehabilitation and chest physiotherapy services in India, the challenges they face, and strategies for improvement.

➢ *Pulmonary Rehabilitation: An Overview*

Pulmonary rehabilitation (PR) is a multidisciplinary intervention designed to optimize physical and emotional well-being in patients with chronic respiratory conditions. It typically includes:

- Exercise Training: Tailored programs to improve endurance and strength.
- Education: Information about disease management, inhaler techniques, and lifestyle modifications.
- Psychosocial Support: Strategies to address anxiety, depression, and social isolation.
- Nutritional Advice: Guidance on diet and nutritional status, especially in COPD where muscle wasting is common.

PR has been shown to improve exercise capacity, reduce hospital admissions, enhance quality of life, and lower mortality rates [1]. However, its adoption and accessibility remain suboptimal in India, especially in regions outside of metropolitan cities.

➢ *Chest Physiotherapy: Scope and Importance*

Chest physiotherapy comprises techniques aimed at improving airway clearance and lung function. These include:

- Postural Drainage: Using gravity to help drain mucus from specific lung areas.
- Percussion and Vibration: Manual techniques to loosen mucus.
- Breathing Exercises: Techniques like diaphragmatic and pursed-lip breathing to enhance lung function and reduce shortness of breath.
- Inhalation Therapy: Assisting patients in using devices like nebulizers and inhalers efficiently.

Chest physiotherapy is essential for conditions like bronchiectasis, cystic fibrosis, and chronic bronchitis, where airway clearance is critical. It also plays a significant role in post- operative pulmonary care, restoring lung function after surgery [2].

II. CURRENT STATUS IN INDIA

➢ *Availability of Pulmonary Rehabilitation Services*

In India, PR services are concentrated in tertiary care centres and academic hospitals in urban areas. Access is severely limited in rural and semi-urban regions. A 2020 study indicated that fewer than 20% of chronic respiratory patients are referred for PR, with even fewer completing the program due to logistical and financial constraints [3].

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24OCT028

➢ *Chest Physiotherapy Services*

While more widespread than PR, chest physiotherapy is often not systematically integrated into respiratory care. It is mainly available in urban centres and private hospitals, with public sector hospitals and rural healthcare centres lacking trained personnel and standardized protocols [4].

➢ *Comparison with Global Practices*

In comparison to countries like the UK, USA, and Australia, where pulmonary rehabilitation and chest physiotherapy are well-established and widely accessible, India's services are lagging. For instance, countries like Australia have developed home-based PR models that are highly effective for rural populations. In contrast, India has yet to scale home-based or community-based PR programs [5]. Additionally, India's healthcare system does not yet incorporate widespread insurance coverage for rehabilitation services, as is common in more developed healthcare systems [6].

III. CHALLENGES AND BARRIERS TO ACCESS

➢ *Lack of Awareness*

Both patients and healthcare providers often lack awareness about the benefits of PR and chest physiotherapy. Many patients are unfamiliar with rehabilitation for lung diseases, and healthcare providers may not recognize the need to integrate PR into standard care, contributing to low referral rates [7].

➢ *Limited Infrastructure*

PR centres are mainly available in metropolitan cities like Mumbai, Delhi, and Bengaluru, while rural areas lack infrastructure and trained professionals to offer such services [8].

Chest physiotherapy, though more common, is inconsistently delivered and rarely available in rural public health centres.

➢ *Financial Barriers*

PR programs can be expensive, and the cost of travel to urban centres further adds to the financial burden. Most patients, particularly from lower socio-economic backgrounds, struggle to afford these services. Furthermore, these programs are rarely covered by health insurance, making them inaccessible to many patients [9].

➢ *Workforce Shortage*

India faces a shortage of respiratory physiotherapists and professionals trained in PR. Most physiotherapists are trained in orthopaedics or neurology, with fewer specializing in respiratory care. Even among those who do, continuous education on advanced techniques is often lacking [10].

➢ *Cultural and Social Barriers*

In some parts of India, cultural factors discourage participation in PR or chest physiotherapy, particularly for women. Social stigma related to chronic illness, and the misconception that rest is more beneficial than exercise, also impede participation [11].

➢ *Patient Case Studies*

- Case Study 1: A 65-year-old male with COPD in Mumbai attended a PR program at a tertiary care hospital. After completing a 12-week program, his exercise capacity improved by 30%, and his hospitalizations were reduced. He reported a significant improvement in quality of life and reduced breathlessness. However, his access to the program was possible only due to living in an urban area, illustrating the disparity in access between urban and rural populations.
- Case Study 2: A 55-year-old female from a rural area in Madhya Pradesh suffering from post-tuberculosis lung damage was unable to access chest physiotherapy due to the absence of services in her district. Despite repeated hospitalizations for lung infections, her condition remained poorly managed until she relocated to an urban centre for better access to healthcare.

IV. STRATEGIES FOR IMPROVEMENT

➢ *Home-based and Telemedicine Services*

Studies have shown that home-based PR is as effective as centre-based programs for improving outcomes in chronic respiratory disease patients [12]. Tele-rehabilitation, supported by mobile apps and wearable devices, could help expand access to PR and chest physiotherapy, particularly for rural populations. This model has been successful in countries like Australia and could be adapted for India [13].

➢ *Training Healthcare Providers*

Expanding training programs for physiotherapists specializing in respiratory care is essential. Creating specialized certification programs and offering regular workshops will ensure that professionals remain updated with the latest techniques [14]. Training should also extend to healthcare workers in rural areas to decentralize these services.

➢ *Policy and Health System Integration*

Government programs like Ayushman Bharat and the National Health Mission should integrate PR and chest physiotherapy as standard care for chronic respiratory diseases. This would not only reduce hospital admissions and healthcare costs but also improve patient outcomes and quality of life [15].

➢ *Improving Insurance Coverage*

Expanding insurance coverage for PR and chest physiotherapy would make these services accessible to a broader section of the population. Government subsidies or schemes could help reduce out-of-pocket expenses, making long-term care sustainable for lower-income patients [16].

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/IJISRT24OCT028

➢ *Increasing Public Awareness*

Public health campaigns should educate patients about the benefits of pulmonary rehabilitation and chest physiotherapy. Additionally, healthcare providers need more education on the importance of referring patients to these programs. Community-based outreach programs can increase awareness in rural and underserved areas [17].

➢ *Future Directions*

Further research is needed to assess the long-term outcomes of home-based and community PR models in India. Studies should also evaluate cost-effectiveness and explore scalable models for tele-rehabilitation. Additionally, a nationwide registry of PR and chest physiotherapy centres could help streamline access and referrals, while the use of digital health tools could support monitoring and patient engagement [18].

V. CONCLUSION

Pulmonary rehabilitation and chest physiotherapy are essential for improving the lives of patients with chronic respiratory diseases in India. However, their full potential remains untapped due to limited awareness, infrastructure, and workforce shortages. Expanding access to these services through home-based models, telemedicine, enhanced training, and government policy integration will help bridge the gaps in care and improve outcomes for millions of patients across India.

REFERENCES

[1]. Global Initiative for Chronic Obstructive Lung Disease (GOLD). "2023 GOLD Report: Global Strategy for the Diagnosis, Management, and Prevention of COPD."
[2]. McCarthy, B., et al. "Pulmonary rehabilitation for chronic obstructive pulmonary disease." *Cochrane Database of Systematic Reviews* (2015).
[3]. Vijayan, V.K. "Chronic obstructive pulmonary disease." *Indian Journal of Medical Research* (2013).
[4]. Joshi, J.M. "Chest Physiotherapy: The Indian Perspective." *Journal of Indian Medical Association* (2020).
[5]. Holland, A.E., et al. "Home-based rehabilitation for COPD using minimal resources: a randomized, controlled equivalence trial." *Thorax* (2017).
[6]. Mehrotra, A., et al. "The status of respiratory physiotherapy in Indian hospitals: A cross- sectional study." *Physiotherapy Journal* (2022).
[7]. Mutt, R. "Challenges in Delivering Pulmonary Rehabilitation in India." *Journal of Pulmonology* (2021).
[8]. Agarwal, D., et al. "Educating Patients on Pulmonary Rehabilitation: Key Steps for Success." *Indian Journal of Pulmonary Care* (2020).
[9]. Chawla, R., et al. "Pulmonary Rehabilitation in India: A Way Forward." *Lung India* (2019).
[10]. Murthy, K.J.R., et al. "The Role of Physiotherapy in Pulmonary Rehabilitation: Experiences from a Large Urban Center in India." *Indian Journal of Chest Diseases and Allied Sciences* (2018).
[11]. Nair, A., et al. "Expanding Training for Physiotherapists in Pulmonary Care: A National Need." *Indian Journal of Physiotherapy* (2021).
[12]. Holland, A.E., et al. "Home-based rehabilitation for COPD using minimal resources: a randomized, controlled equivalence trial." *Thorax* (2017).
[13]. Vijayan, V.K., and Shah, A. "Respiratory Diseases in India: The Vision 2030." *Lung India* (2021).
[14]. Rajasekaran, S. "Training Indian Healthcare Professionals in Pulmonary Rehabilitation and Physiotherapy." *Indian Journal of Medical Research* (2020).
[15]. National Health Mission. "National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)." (2020).
[16]. Sundar, S., et al. "The Financial Burden of Chronic Respiratory Diseases in India: A Public Health Perspective." *Journal of Public Health Policy* (2020).
[17]. Mahesh, P.A., et al. "Improving Public Awareness of Pulmonary Rehabilitation: The Role of Community Health Workers." *Indian Journal of Pulmonary Care* (2021).
[18]. Agarwal, D., et al. "Tele-Rehabilitation: A Promising Solution for Expanding Access to Pulmonary Rehabilitation in India." *Journal of Telemedicine and eHealth* (2022).