

Barriers to pulmonary rehabilitation - A narrative review and perspectives from a few stakeholders

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ABSTRACT

Pulmonary Rehabilitation (PR) is an essential and comprehensive intervention recommended in the management of people with chronic respiratory diseases (CRD). Scientific evidence suggests significant health benefits with respect to repeated hospital admissions, exercise tolerance and Health Related Quality of Life (HRQoL). However, the uptake and completion of PR programs are globally low. In order to understand the factors contributing to underutilization of PR, it is important to review and recognize the barriers to PR program. A literature search was conducted on Medline (PubMed) database. After reviewing the title and abstracts, full text articles were scrutinized for their relevance. Twenty-two studies involving factors affecting the uptake, participation and completion of PR program were included in this review. Reported barriers to PR were healthcare system, healthcare professional and patient related factors. Primary factors related to healthcare system and healthcare professionals were fewer PR centers, accessibility inconvenience, lack of awareness of PR program, low knowledge of referral process and lack of interdisciplinary teamwork. Difficulties faced by patients to take up and/or to complete PR programs were lack of transportation, comorbidities, lack of perceived benefits, socio-economic status and lack of funding facilities. Identified and reported barriers resulted into discontinuity between knowledge of health benefits and utilization of PR service for patients with CRDs. Addressing the barriers would accelerate the healthcare professionals' referral and patients to avail the health benefits of rehabilitation service.

KEY WORDS: Challenges, chronic respiratory diseases, difficulties, exercise training

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INTRODUCTION

Chronic respiratory diseases (CRDs) are a disease of airways and other structures of the lungs.^[1] The major types of CRDs are chronic obstructive pulmonary diseases (COPD), asthma, bronchiectasis, and occupational lung diseases. The World Health Organization's global burden of disease report stated COPD as the sixth leading factor of mortality

in 1990 and will be the third most common cause of death and the fifth cause of disability worldwide by 2020.^[2] In 2016, the Global burden of Diseases reported that CRDs contribute to 32% of total Disability Adjusted Life Years.^[3] Disabling chronic respiratory conditions are alarmingly increasing in developing countries leading to increased

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morbidity, repeated hospital admissions, and reduced health-related quality of life (HRQoL).

Chronic respiratory diseases are not completely curable but the morbidity arising from it can be controlled and improved by holistic management like Pulmonary Rehabilitation.^[4] Pulmonary rehabilitation is an integral comprehensive intervention used in the management of people with chronic respiratory ailments. It helps to combat significant disabling symptoms of CRDs such as dyspnea, exercise intolerance, reduced functional capacity, poor self-efficacy, and reduced HRQoL. Importantly, in addition to the above benefits, it is effective in reducing health-care costs.^[5] A clinical audit carried out in the UK of PR services reported that only 15% of the total eligible patients (>4 lakh patients) with CRDs were referred and only 10% attended the initial assessment.^[6] A similar scenario is observed globally in terms of the implementation of PR services.^[7] Despite the known health benefits and robust evidence in favor of PR for most of the respiratory conditions, it remains grossly underutilized.^[8]

The underutilization of PR in CRDs needs to be addressed urgently owing to the health benefits of PR in CRDs. The breach between the knowledge of health benefits and uptake of PR programs leads to a lack of implementation of rehabilitation services, which in turn accounts for increased morbidity and health-care burden. In order to address the low implementation of PR, there is a need to understand the barriers to the PR program. Therefore, this narrative review aimed to explore the literature addressing the factors affecting the optimal use of PR service.

A literature search was conducted on Medline (PubMed) database to identify the barriers to PR in CRDs. The search strategy included the following keywords “pulmonary rehabilitation,” “exercise training,” “smoking cessation,” “self-management education,” “barriers,” “challenges,” “difficulties,” “chronic respiratory diseases,” and “chronic lung diseases” which is current to May 2019. The initial search yielded four thousand articles. Twenty-five studies were selected from screening the title and abstract of the resulting articles. After reviewing the abstracts, full-text articles were scrutinized for relevance. Twenty-two articles were included in this review; two studies were excluded as they screened barriers and facilitators to improve physical activity in CRDs patients and another study being in the French language. The inclusion criteria of the review were studies identifying barriers or factors affecting the uptake of PR services in CRD population. The studies were required to be published in the English language and to involve human subjects. Literature that could not assess the outcome of interest was excluded. After screening the title and abstract, 22 articles were selected.

The barriers of PR and the implication of the same to Indian subcontinent are discussed under the following headings:

Barriers to pulmonary rehabilitation

The factors attributing to low implementation, uptake, and completion of the PR program is multifactorial. Potential barriers to PR can be classified as health-care system barriers, health-care professional related-barriers, and patient-related barriers

Health-care system and health-care professional-related barriers

Health-care professional knowledge and awareness of pulmonary rehabilitation program

Patients with CRDs will not avail PR services unless referred by their treating doctor.^[9] Referral depends on the awareness of PR health benefits and knowledge of the referral process among physicians. A survey among the Australian General Practitioners (GP) reported that there was a lack of awareness of a structured PR program and its owing health benefits for patients with CRDs among GP. There exists low knowledge among health-care professionals about how to refer a potential patient to PR. In addition, the awareness of rehabilitation service providers is low, making the treating doctor unsure in referring a patient. Lack of streamlined referral process and low knowledge of PR leads to failure in referring an eligible patient to PR.^[10] Consensus statements on referral criteria and inclusion of PR in the curriculum of the medical education can help in eliminating this barrier. In addition, training various rehabilitation professionals through certificate courses in diet and nutrition, counseling, exercise training, cognitive behavior therapy, etc., would help to address the barrier of inadequate and undertrained staffing and may open doors for increased availability of PR programs for people with CRDs.

Fewer pulmonary rehabilitation center

The availability of PR services in the management for CRDs is scarce. As reported by the department of health, UK, only 2% of those who need PR had access to it.^[11] Lack of adequate local provisions of PR services attributes to inconvenience in accessing it. Causative factors for a shortfall in the availability of rehabilitation programs are inadequate PR infrastructure and funding. There exists an imbalance between the capacity of the existing PR program and the number of suitable patients availing the benefits.^[12,13] This often discourages health-care professionals from considering a referral. However, if there are adequate local provisions with required infrastructure raised through funding, the referral rate may improve.^[13-16]

Lack of promotion of health behavior change

Modification of health-related behaviors is associated with potential health gains. It is an important component that enhances the patients' willingness to accept the referral, attend, and continue the rehabilitation program. Although being a favorable strategy to enhance PR utilization but presents considerable challenges for patients with COPD. For instance, one of the hindrances by COPD patients is the subjective feeling that the diagnosis will be linked to smoking habits and they will be counseled only for smoking

cessation. This behavior could impede a patient's decisions to acquire the diagnosis and appropriate treatment. To prevent backsliding of patients due to health-related behaviors, there is a need for promotion of health behavior changes. Imparting health education through counseling would help to overcome the consequence. A study among physicians reported that there is a lack of promotion of strategies to modify health-related behaviors, which in turn prevents patients from taking up the PR program.^[9,17]

Influence of treating doctor

The treating physician plays a vital role in identifying and referring the patient to PR program by modulating their beliefs and attitude toward attending the rehabilitation program. Studies have shown the positive influence of referring doctors enhances the uptake and participation of patients in the rehabilitation programs.^[10,18,19] Patients with CRDs reported that their treating physician told neither about PR nor about the health benefits owing to symptom reduction and improve HRQoL.^[20] This was identified as a challenge to take part in the PR program.

Lack of communication

Pulmonary rehabilitation is a multidisciplinary approach which states that the wellbeing of a patient with CRD depends on various factors. One important factor is "Teamwork." It explains the role of each member in the team, starting from the patient, physician, nurses, physiotherapist, occupational therapist, respiratory therapist, social worker, and family members. Adequate and timely communication between different health-care professionals and patients results in a holistic approach to patient care. It has been identified that a lack of communication with different health-care professionals within the interdisciplinary team and poor teamwork contributes to the underutilization of PR benefits.^[10] The incorporation of digital systems for communication, case conferences, and interdisciplinary participation in the PR program can alleviate the issue of lack of communication among team members.

Perspective from Indian pulmonologist about pulmonary rehabilitation

There is inadequate exposure to PR programs; in most of the centers during postgraduate training in the country. This leads to reduced awareness and in the long term to lack of utilization of PR facilities. Moreover, well-developed PR facilities are not readily available in many centers. Many a time a basic, perhaps inadequate PR intervention is administered by doctors themselves to avoid the financial burden of additional consultation on patients. A proactive approach by doctors and PR specialists is required to make it more widely used.

Patient-related factors

Travel and transport

The duration of a standard PR program is 8–12 weeks and patients are required to attend a supervised session at least twice weekly.^[21] Foremost, the uptake is affected due to

inconvenience in accessing the rehabilitation center. The challenges faced were the distance of the rehabilitation center from home, restricted mobility, dependence on walking aids, and financial constraints.^[22-25] Studies report that patients whose house is at a distance of >36 miles from the center^[26] or travel hours of >30 min were significantly less likely to complete the program.^[27] In addition to the patient's perception, physicians assessing patients with CRDs perceived that inconvenience in accessing a PR center was a major attributable factor to low uptake, attendance and completion of a PR program.^[9,22-25,28] To address this barrier, the development of alternative models of PR delivery such as home-based rehabilitation and telerehabilitation is the need of the hour. Although this will place significant burden to train workforce, it should pave way for increased availability and utilization of PR.

Disruption to established routines

Hospital appointments are rarely given priority as they interfere with a person's daily routine. To ensure attendance to these appointments, the patient requires to isolate time from their busy schedules. Many fail due to important work commitments and social activities like caring for other members of the family. Some also fail in this regard as it hampers with their leisure time.^[10,24,25]

Lack of perceived benefits

Knowledge about various benefits of PR among patients is found to be low and one of the factors which feed to the dropout rate.^[22,24] In a study which interviewed a patient who had undergone PR, it was noticed that the patients did not receive the benefits as the program promised.^[20] This can be due to a lack of dialogue between the PR professionals and the patients and lack of patients' belief toward exercise to combat the chronicity of their diseases.^[29]

Comorbidities and disabilities

Chronic obstructive pulmonary disease rarely comes alone; along with this patient has other comorbidities such as cardiovascular disease, skeletal muscle dysfunction, metabolic syndrome, depression, and osteoporosis. Symptomatic affection of comorbidities often withholds individuals with CRDs from attending PR regularly. A few individuals with CRDs even assumed the symptoms of comorbidities might worsen with exercise training.

Socioeconomic deprivation

The socioeconomic status may influence the uptake and completion of the rehabilitation program. Attendance to a rehabilitation program may increase when covered under the insurance package. In a developing country like India, the cost of the rehabilitation programs is often paid by the patients in addition to other health-care costs. Therefore, increased co-pay and lack of insurance coverage prevent the patients from attending and/or completion of the PR program.^[30] Inclusion of the PR program under the ambit of the government health schemes and private insurance coverage through government policies would help not only

the patients who need PR but also to run and sustain such programs by the hospital/clinic administrators.

Low levels of social support

Lack of social support is often precipitated as social isolation. Social isolation leads to a feeling of depression: “I am always depressed because of the things I cannot do” a common feeling of individuals with CRDs. Studies have shown that significant anxiety (>50%) and depression (>40%) were present with exacerbation in individuals with COPD.^[31,32] Acute exacerbations and psychosocial factors like depression, dependence on others for ADLs curbs the completion of a PR program.

Other factors

Apart from the above-stated factors, perception of health status is another factor that would prevent the eligible patients from being active PR participants. Patients suggested that there was a fear that PR may be harmful to health and may increase breathlessness. The sudden deterioration of health status or acute exacerbation may restrict their ability to attend or/and complete the PR program. Past negative experiences, either with health-care staff or PR services may influence the uptake of the PR program. The triggering factor being the past negative experience shared by friends and relatives, which has an impact on patients willing to participate in the PR program.^[10,20]

The perspective of an Indian patient about pulmonary rehabilitation

Pulmonary rehabilitation is an essential component for CRDs. Initially, compliance to a rehabilitation program is low due to fear of breathlessness, increased symptoms of exacerbation and hospitalization. Later, dependence on caregivers for transportation to a rehabilitation center, the burden of health-care costs over family members, lack of self-esteem, lack of awareness and/or perceived benefits of PR impede patients' participation in a rehabilitation program. Furthermore, older age groups and frailty have shown to curb the uptake of the PR program.

CONCLUSION

Significant barriers to PR exist among the health-care system, health-care professionals, and patients. Identified and reported barriers resulted in the discontinuity between knowledge of health benefits and utilization of PR service for patients with CRDs. Addressing the barriers by alternate PR delivery models such as home-based rehabilitation and telerehabilitation is likely to improve the referral rate by the physician and consequently improve the utilization of PR programs by the patients.

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