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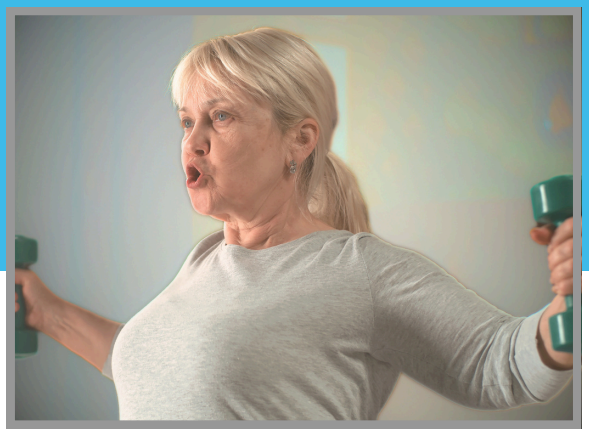
Telehealth
Pulmonary Rehabilitation
Research



Abstract Review

AMERICAN TELEMEDICINE ASSOCIATION
Member

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The goal of this collection of research abstracts is to provide a documented body of information supporting the validity and clinical significance of telehealth based pulmonary rehabilitation for a variety of chronic lung disease conditions.

Comparison of Clinically Meaningful Improvements After Center–Based and Home–Based Telerehabilitation in People With COPD

Results

Two hundred sixty-six individuals with COPD were included in the analysis. The proportion of responders was not different between center-based pulmonary rehabilitation and home-based telerehabilitation at either end rehabilitation or 12-month follow-up for any outcome (range, 39%-62%). In a binary logistic regression analysis, baseline outcome values, but not participant demographic characteristics, were associated most commonly with responder status. The relative risk of program noncompletion in the center-based group was nearly 4 times greater than for telerehabilitation (center-based pulmonary rehabilitation: n = 79 [58%] vs home-based telerehabilitation: n = 116 [90%]; relative risk, 3.89; 95% CI, 2.28-6.63).

Interpretation

In this study, responder status to pulmonary rehabilitation was not different between center-based and home-based telerehabilitation. The ability to identify patient characteristics that confer greater potential for rehabilitation response or better suitability for a particular model of rehabilitation remains a challenge.

Source

COPD: Original Research Articles in Press, November 08, 2024

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Telehealth pulmonary rehabilitation: A review of the literature and an example of a nationwide initiative to improve the accessibility of pulmonary rehabilitation

Abstract

Several different applications of telehealth technologies have been used in the care of respiratory patients, including telemonitoring, teleconsultations, tele-education, and telehealth-pulmonary rehabilitation (PR). Telehealth technology provides an opportunity to assist in the management of chronic respiratory diseases and improve access to PR programs. While there is inconclusive evidence as to the effectiveness of telemonitoring to reduce healthcare utilization and detection of exacerbations, teleconsultations have been shown to be an effective means to assess patients' disease prior to the initiation of PR, and telehealth PR has been shown to be as effective as institution-based PR at improving functional exercise capacity and health-related quality of life.

Source

Chronic Respiratory Disease.
2017 Aug 8;15(1):41–47. doi: 10.1177/1479723177245 70

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Delivering Pulmonary Rehabilitation for Patients with Chronic Obstructive Pulmonary Disease at Home Using Telehealth: A Review of the Literature

Abstract

Pulmonary rehabilitation is recommended to restore chronic obstructive pulmonary disease (COPD) patients' abilities to the highest level of independency and functionality. Telehealth has the potential to improve rehabilitation programs and to enhance patients' participation. However, little is known about the potential benefits of using telehealth in providing rehabilitation for COPD patients at home. The purpose of this review was to provide a narrative synthesis of literature of studies, which use telehealth with video components to provide real-time pulmonary rehabilitation for COPD patients. An electronic database search was performed in the Ovid Medline, CINAHL, and PubMed databases. Seven eligible studies were included based on the inclusion criteria. Based on the included studies, using telehealth to provide real-time interactive pulmonary rehabilitation for COPD patients at home is feasible and acceptable, and can provide clinical and social positive benefits. A knowledge gap regarding feasibility, acceptance, and benefits of using telehealth to provide real-time pulmonary rehabilitation services still exists.

Source

Saudi J Med Med Sci. 2016
Aug 11;4(3):164–171. doi: 10.4103/1658-631X.188247

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Telehealth Rehabilitation Using Videoconferencing As Safe and Efficacious as Center-Based Pulmonary Rehabilitation

Pulmonary rehabilitation (PR) improves exercise capacity, quality of life, and psychological well-being and reduces dyspnea and health care use.1,2 However, despite these benefits, the availability and accessibility of PR facilities for patients with chronic respiratory diseases are very limited. A recent US study reported only approximately 4% of patients with COPD are likely to have access to PR.3 Barriers to access PR are multifactorial, including poor socioeconomic status, long-distance travelling, lack of adequate funding, lack of reimbursement, and limited insurance coverage for PR.1,4,5

Source

Chest Pulmonary - Editorial Articles in Press, 100111,
October 01, 2024

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A Two-Way Audiovisual Teleconferenced Pulmonary Rehabilitation Program Is Safe, Feasible, and Expands Geographic Catchment

Background

Given limited access to center-based, in-person pulmonary rehabilitation (PR), alternative delivery strategies are needed.

Research Question

We compared a virtual PR program with a conventional center-based one with respect to safety, feasibility/acceptability, and geographic catchment (primary outcomes). We explored efficacy by examining changes in functional outcomes (secondary outcomes).

Results

A total of 120 (52 in-person and 68 virtual) patient enrollments were examined; 84% had COPD. Mean age, FEV1 and FVC % predicted, and baseline 6-min walk test distance were similar between groups. For safety, the overall rate of PR-related adverse events was 1.2 per 1,000 person-days of observation, with no between-group differences. For feasibility, the average number of exercise classes completed (12.4 ± 6.2 vs 13.0 ± 6.1) and proportion completing ≥ 70% of classes (61.5% vs 67.6%) was comparable between in-person and virtual groups, respectively. For acceptability, among those who completed the virtual PR feedback questionnaire (n = 30), 100% felt safe exercising at home, 97% endorsed clear internet connection, and 90% agreed education sessions were easy to understand. For geographic catchment, patients in virtual PR lived farther (median, 34.1; interquartile range, 16.6-45.1 vs median, 10.3; interquartile range, 5.6-20.6 miles, $P < .001$) and had longer drive times (mean 86.0 ± 31.6 vs 51.4 ± 31.9 min, $P < 0.001$) than patients in in-person PR. In the subset with both intake and exit evaluations, similar improvements were observed in functional outcomes and dyspnea in both groups.

Interpretation

Two-way audiovisual teleconferenced PR is safe, feasible/acceptable, and significantly expands geographic catchment.

Source

Chest Pulmonary - Education and Clinical Practice: Original Research Articles in Press, 100089, July 29, 2024

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Telehealth in sarcoidosis: A scoping review

Results

Out of 821 studies, only 6 studies met the inclusion criteria. The findings showed that mHealth technologies have good acceptance among patients and healthcare providers in managing sarcoidosis symptoms, such as fatigue, stress, and physical activity levels, and improving quality of life. Also, activity tracker technology, alone or in combination with other remote monitoring tools, increases exercise performance, reduces fatigue, and allows for continuous monitoring of the disease status. Hence, it has the potential to be integrated into long-term care programs for patients with sarcoidosis. In addition, telerehabilitation technology could be an acceptable option for patients, but its effectiveness in improving exercise capacity and quality of life in patients with sarcoidosis requires further investigation.

Conclusion

mHealth and activity tracker technology showed promising results in improving sarcoidosis management and increasing patients' motivation and adherence to treatment, but further studies are required to assess the effectiveness of telerehabilitation. Overall, telehealth has significant potential to improve the care of sarcoidosis patients, but further research is needed to evaluate the effectiveness of these technologies.

Interpretation

Two-way audiovisual teleconferenced PR is safe, feasible/acceptable, and significantly expands geographic catchment.

Source

BMC Pulmonary Medicine volume 25, Article number: 115 (2025)

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The role of telehealth interventions in pulmonary rehabilitation programs for patients with chronic obstructive pulmonary disease (COPD)

In conclusion, telehealth interventions have the potential to revolutionize COPD management by improving access to care, enhancing patient engagement, and optimizing healthcare delivery. While challenges exist, such as ensuring the quality and security of telehealth platforms and addressing technical and knowledge gaps, collaborative efforts between healthcare providers, technology developers, policymakers, and patients are essential to harnessing the full benefits of telemedicine in COPD care. Continued research, innovation, and investment in telehealth infrastructure are crucial to advancing the field and improving outcomes for individuals living with COPD.

Source
April 2024 InterConf
DOI:10.51582/interconf.19-20.04.2024.030

Conference: 7th International Scientific and Practical Conference «Scientific Trends and Trends in the Context of Globalization»
At: Umeå, Kingdom of Sweden

Feasibility, Usability, and Pilot Efficacy Study of a Software-Enabled, Virtual Pulmonary Rehabilitation with Remote Therapeutic Monitoring

Results

Forty-eight participants were enrolled, and 40 (83.3%) completed the intervention, n=17 in the C-PR group and n=23 in the V-PR group. Four participants from each group withdrew due to reasons related to health issues (appendicitis, thrush, COVID, back pain) or the health status of their spouse, no-shows, and time constraints. Adherence to the exercise dose (3x/week) and educational offerings were >80% in both groups. Participants in the V-PR group scored the software as having high usability. In both groups, 6MWT distance improved significantly, as did scores on the CAT and SGRQ. No adverse events were reported in either group.

Conclusion

A software-enabled virtual PR program with remote therapeutic monitoring is feasible, usable, and effective. It could offer an alternative model that increases PR uptake for those unable or unwilling to attend in-person, center-based PR.

Source

Int J Chron Obstruct Pulmon Dis. 2025 Jan 31;20:231–241. doi: 10.2147/COPD.S484558

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Telehealth Pulmonary Rehabilitation for Patients With Severe Chronic Obstructive Pulmonary Disease

Abstract

For patients with chronic obstructive pulmonary disease, a home-based, interactive telehealth program can improve accessibility to pulmonary rehabilitation and reduce travel costs.

Conclusion

COPD symptoms and complications greatly affect patients' ability to perform daily activities, decrease QOL and functional ability, and result in extensive use of health services. Many patients have limited access to a PR program at hospitals or rehabilitation centers due to health conditions, lack of transportation, and/or family support. This home-based, interactive telehealth PR program can break down the geographic barriers, solve poor program accessibility, potentially increase the utilization of PR, and reduce the cost and travel required by the patients.

Source

Federal Practitioner. 2019 Sep;36(9):430–435.

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