Integrating evidence-based interventions in cardiac and pulmonary rehabilitation guidelines

Kavina Ganapathy | Vipin Kesharwani | Md Mazhar Alam | Sneha Verma

Abstract Cardiac rehabilitation (CR) and pulmonary rehabilitation (PR) programs play a crucial role in optimizing the functional capacity and quality of life of individuals with cardiac and respiratory conditions. These programs are guided by evidence-based interventions that have shown effectiveness in improving clinical outcomes and reducing the burden of disease. Patients with chronic diseases like chronic obstructive pulmonary disease (COPD) and cardiovascular disease (CVD) suffer a disproportionate share of healthcare costs, and many see a decline in their physical and mental abilities as a result. Breathlessness is the first sign of both COPD and cardiovascular disease. Rehabilitation programs (RP) symptoms and improving overall health are two of rehabilitation’s demonstrated benefits. Management recommendations for COPD and CVD include participation in a PR and CR program. This study looks at similar evidence-based strategies in rehabilitation guidelines that aim to help patients with COPD and CVD feel less short of breath and better able to function physically and mentally. The results of the show that there was agreement in terms of program structure, setting, healthcare provider teams, pre- and post-program patient assessments, and educational content (with some exceptions related to disease-specific content). Evidence-based recommendations for CR and PR differ from rehabilitation guidelines most noticeably in their emphasis on nutritional screening, inspiratory muscle exercise, and psychological evaluations.

Keywords: PR, CR, cardiovascular disease, rehabilitation programs

1. Introduction

Programs for improving the physical and mental health of people with heart and lung diseases are known as CR and PR treatments. To give all-encompassing care and support, these programs often use a multidisciplinary approach that includes medical experts, fitness specialists, physiotherapists, and psychologists (Yang & Yang 2020). Individuals go through a complete medical assessment before beginning an RP to determine their present health state, identify risk factors, and set baseline data. In CR and PR, education is essential. Patients are informed about their disease, risk factors, medication administration, and changes to a healthy lifestyle. This includes advice on proper eating, quitting smoking, managing stress, and methods to enhance general well-being (Tsutsui et al 2021). A crucial part of cardiac and PRIs exercise training. The workout program is customized based on the person’s ability and health. It often includes strength training activities to increase muscular strength and endurance as well as aerobic workouts to improve cardiovascular fitness, such as walking or cycling. Exercise sessions are monitored to ensure safety (Gordon et al 2019). Programs for PR concentrate on enhancing lung health and treating respiratory problems. Interventions such as breathing exercises, methods to increase lung capacity, and ways for dealing with shortness of breath are offered by respiratory therapists. Techniques including diaphragmatic breathing, pursed-lip breathing, and controlled coughing may be used in these therapies (Bourbeau et al 2020). Drug management is often a part of cardiac and PR programs to ensure proper drug administration and adherence to recommended schedules. The medical staff keeps track of pharmaceutical efficacy, modifies doses as necessary, and instructs patients on how to take their medications correctly (Rutkowski et al 2021). Programs for CR and PR may work with psychologists or counselors to assist, with coping mechanisms, and mental health therapies. They address problems including stress, worry, and depression as well as how to acclimatize to the diagnosis and alter one’s lifestyle. The management of heart and pulmonary diseases heavily depends on nutrition. Registered dietitians provide recommendations for a heart- or lung-healthy diet, emphasizing nutrient-rich meals, portion management, and methods for controlling illnesses like hypertension or diabetes (Oates et al 199). Heart disease risk factors are identified and addressed in CR programs. Dealing with conditions like high blood pressure, high cholesterol, managing diabetes, controlling weight, and giving up smoking might be part of this. Regular vital sign monitoring, exercise performance, symptom assessment, and progress evaluation are all parts of cardiopulmonary therapy. This makes it possible for the medical team to keep tabs on the patient’s development,
alter the therapy as needed, and provide ongoing support (Vitacca et al 2020). Cardiac Rehabilitation: In RP, each person receives a long-term maintenance plan to continue their progress. This plan may involve maintaining your workout regimen, altering your lifestyle, getting regular checkups, and having access to support systems in your local area. A dietitian may assist patients in establishing better dietary practices that may minimize their risk of heart disease, such as consuming less saturated fats and cholesterol and more fruits, vegetables, and whole grains (Jiang et al 2020). Quitting smoking is a top goal for the patient. To assist them in quitting smoking, tools, treatments, and counseling may be made available. Living with heart disease might affect one’s mental health. Depression, anxiety, and stress therapy may be provided by mental health specialists. Cardiac rehab programs may assist patients in comprehending and appropriately administering their medicines. This involves educating patients about their illness, risk factors, the importance of exercise and nutrition, and methods to stop the development of heart disease (Zhao et al 2020). Exercises that focus on increasing tolerance and stamina are included in this, as well as strength training. The improvement of lung function may also include breathing exercises. Patients get instructions on how to lead normal lives without experiencing breathlessness. To manage shortness of breath, breathing techniques including pursed-lip breathing and diaphragmatic breathing may be taught. Similar to cardiac rehab, assistance for mental health conditions including depression and anxiety is often provided. This can include teaching them about their disease, how to take their meds properly, how to spot and deal with flare-ups, and, if necessary, how to utilize oxygen treatment (Zhu et al 2020). It’s crucial to remember that depending on each patient’s unique demands, particular therapies may change. Furthermore, both cardiac and PR often adopt a comprehensive strategy that addresses other risk factors (such as high blood pressure, diabetes, and high cholesterol) as well. This study looks at similar evidence-based strategies in rehabilitation guidelines that aim to help patients with COPD and CVD feel less short of breath and better able to function physically and mentally.

2. Related Works

Thomas et al (2019) defined the fundamental elements, effectiveness, advantages, disadvantages, gaps in the evidence, and research required to guide the future delivery of HBCR in the United States. Low- to moderate-strength data from prior randomized studies suggests that center-based CR and HBCR may both enhance clinical outcomes for three to twelve months. They conclude that for certain clinically stable, low- to moderate-risk patients who are qualified for CR but are unable to participate in a conventional center-based CR program, HBCR may be a viable choice. Siddi et al (2020) emphasized PR in COVID-19 and is based on 40 recent articles. There is a dearth of excellent research on this subject. In addition, oxygen treatment, early mobility, airway clearing, cardiovascular activity, gradual-graded limb muscle resistance training, and nutritional, and psychological therapies should be taken into account in instances of mechanical ventilation and post-PICS COVID-19 patients. Holland et al (2021) held to establish prerequisites for the effective implementation of developing program models and to reach agreement on the key elements of PR. In a Delhi process, experts from all around the world came together to determine the 13 essential PR components that any program model must have. These components include patient assessment, program content, delivery strategy, and quality control. Only PR models that have completed clinical studies are now recognized as being suitable for usage.

Wang et al (2020) extrapolate data from earlier research and experience to provide a PR viewpoint & interference with the multi-corrective conduct of COVID-19. Patients with COVID-19 may benefit from PR by reducing their dyspnea symptoms, anxiety levels, complications, disability, loss of function, and overall quality of life. The selection of various training methods includes cardiopulmonary exercise testing, as discussed by Kumar. The addition of additional treatments such as noninvasive ventilator support, and oxygen, in certain individuals, is explored together with neuromuscular electrical stimulation, gait evaluation, and training. In individuals with underlying pulmonary hypertension, the possibility of pulsed inhaled nitric oxide is investigated, together with nutritional assistance. It reviewed how sleep quality affects PR results (Wouters et al 2020). Recommendations for rehabilitation procedures in each of the 5 phases of the COVID-19 scale ambulatory patients and epidemiological risk factors; ventilator-supported patients with obvious cognitive function; and patients with no cognitive impairment (Cheng et al 2019). Evidence also points to a potential decrease in post-COPD exacerbation healthcare use. Since its origin, PR has progressively developed into the organized, multi-component intervention that is provided by a multidisciplinary team today. This intervention addresses the unique health requirements of each respiratory patient and generally lasts for several weeks. To modify behaviors permanently, emphasis is put on boosting self-efficacy via group self-management training (Nici et al 2019).

Spencer & McKeough (2019) assessed the most recent research on maintenance exercise programs for COPD patients and identify the kinds of programs that can sustain the effects of PR for at least a year. The present research on maintenance exercise programs that included supervised maintenance exercise was insufficient, and the research on maintenance exercise programs that included unsupervised maintenance exercise was confusing and, in many cases, did not demonstrate any superiority above standard care. The writers of this paper, who are all members of the Canadian Thoracic Society (CTS), came to these conclusions based on the data available at the time this document was published. In the post-peak phase of the COVID-19 pandemic, this position statement intends to provide direction for the restart of PR programs Dechman et al (2020). Clinical procedures of “thinking differently” and “pushing the frontiers” are now underway, particularly in the United
Kingdom and Australia, where novel PR strategies are being piloted. The primary goals are to reach the COPD population and send them to rehabilitation services (McNamara et al 2019).

3. Methods

These methodical review objectives were to locate and assess existing countrywide and worldwide standards for CR and PR. The main goal of this evaluation was to locate within these rehabilitation recommendations evidence-based therapies and outcome measures that would reduce breathlessness.

3.1. Search strategy

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement’s recommendations were followed while conducting the preceding procedure’s ambitious and methodical investigation of gaze review journalism. For pertinent citations, the following electronic databases were searched: MEDLINE (OVID), EMBASE, and CINAHL (EBSCO). These databases include Epub Ahead-of-Print, In-Process, and Other Non-Indexed Citations. To make guarantee that the most current recommendations were found, search outcomes were restricted to English-language sources, and the search technique was applied to citations produced between January 2000 and July 2016. In the title and abstract fields, the search phrases CR and PR were combined with "guideline." Each database’s relevant medical topic headings were used to shorten and modify the search phrases, and Table 1 shows the search method used for the MEDLINE database.

<table>
<thead>
<tr>
<th>No.</th>
<th>Search Term(s) Utilised</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(guideline or practice guideline).pt.</td>
<td>(23091)</td>
</tr>
<tr>
<td>2</td>
<td>One or two</td>
<td>(6694)</td>
</tr>
<tr>
<td>3</td>
<td>3 and 7</td>
<td>(165)</td>
</tr>
<tr>
<td>4</td>
<td>Practice Guideline/</td>
<td>(18999)</td>
</tr>
<tr>
<td>5</td>
<td>4 or 5 or 6</td>
<td>(36468)</td>
</tr>
<tr>
<td>6</td>
<td>(pulmonary adj4 rehab*).ti,ab.</td>
<td>(2390)</td>
</tr>
<tr>
<td>7</td>
<td>Limit eight to (English Language and yr = &quot;2000-current&quot;)</td>
<td>(122)</td>
</tr>
<tr>
<td>8</td>
<td>(Cardi* adj4 rehab*).ti, ab.</td>
<td>(4430)</td>
</tr>
</tbody>
</table>

3.2. Eligibility criteria

Practice guidelines that outlined the evidence foundation for interventions and were a main document supported or certified by a countrywide or worldwide group qualified for inclusion. The relevant criteria have to include either cardiac RP or PR programs. Practice or clinical recommendations that expressed broad opinions and descriptions without supporting data or that were not supported were disregarded. Integrating evidence-based therapies and outcomes measurements were the main results of interest for this evaluation. To guarantee that concordance could be established, these review results were assessed via the detailed description of rehabilitative therapies or outcome assessment.

3.3. Guideline and statement selection and data extraction

Duplicates were eliminated when the database and online searches were finished. The inclusion criteria were used to independently filter the title and abstract of the retrieved recommendations and statement. Guidelines in the full text were located and then reviewed for inclusion. Any differences of opinion over the inclusion of a guideline were addressed until an agreement was reached. Using a pre-made spreadsheet, data extraction was done and checked for completeness.

3.4. Quality assessment

Utilizing the guidelines for "advancing guideline development, reporting, and evaluation in healthcare (AGREE II)", the quality of the contained recommendations was assessed. The AGREE instrument consists of 23 elements, which are divided into 6 areas. These domains include scope and goal, stakeholder engagement, applicability, clarity of presentation, rigor of development, and editorial independence. Grading of Recommendations Evaluation, Development, and Evaluation (GRADE) was used to evaluate guideline recommendations in addition to the excellent evaluation of the guidelines.

4. Results

The combined database searches turned up 410 documents in total, 165 of which were eliminated because they were duplicates of records in another database. The remaining 21 records, which may have directly treated breathlessness via RP and were supported by worldwide associations on respiratory or cardiac medicine, remained after the titles and abstracts were evaluated. An additional 9 articles were eliminated after reading the complete content of these articles. Two articles published in both the journals of the collaborating societies were deemed to be redundant, four guidelines that had been retired but were later updated, and two COPD management guidelines that did not rely on evidence were all deemed to be
ineligible for inclusion. Figure 1 shows the method for the selection of articles and lists all nine guidelines publications that were included.

4.1. Overview of the Declarations and Guidelines

Of the listed clinical or practice guidelines, 3 pertained to PR and 6 to cardiac rehabilitation. There was one guideline from Australia with interdisciplinary authorship, and the recommendations were supported by societies in Europe and North America. The features of these published rules are outlined in Table 2.

<table>
<thead>
<tr>
<th>Author</th>
<th>Country of Society</th>
<th>CR or PR</th>
<th>Endorsing civilization</th>
<th>Year of Publication</th>
<th>Graded technique</th>
</tr>
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<tbody>
<tr>
<td>BACPR, 2012</td>
<td>United Kingdom</td>
<td>CR</td>
<td>British Heart Foundation and the British Association for Cardiovascular Prevention and Rehabilitation (BACPR)</td>
<td>2012</td>
<td>No</td>
</tr>
<tr>
<td>Ries et al 2007</td>
<td>United States</td>
<td>PR</td>
<td>American Association of Cardiovascular and PR and American College of Chest Physicians</td>
<td>2007</td>
<td>Yes</td>
</tr>
<tr>
<td>Bolton et al 2013</td>
<td>United Kingdom</td>
<td>PR</td>
<td>United Kingdom Thoracic Society</td>
<td>2013</td>
<td>Yes</td>
</tr>
<tr>
<td>JCS et al 2014</td>
<td>Japan</td>
<td>CR</td>
<td>JCS, the Japanese Circulation Society</td>
<td>2014</td>
<td>Yes</td>
</tr>
<tr>
<td>Achtten et al 2015</td>
<td>Netherlands</td>
<td>CR</td>
<td>Physiotherapy Royal Society of the Netherlands</td>
<td>2015</td>
<td>No</td>
</tr>
<tr>
<td>Piepoli et al 2016</td>
<td>European Union</td>
<td>CR</td>
<td>American Association of Cardiovascular and PR and the American Heart Association</td>
<td>2016</td>
<td>No</td>
</tr>
<tr>
<td>Woodruffe et al 2015</td>
<td>Australia</td>
<td>CR</td>
<td>Association for Australian Cardiovascular Health</td>
<td>2015</td>
<td>No</td>
</tr>
</tbody>
</table>

Figure 2 shows that only a tiny percentage of people with COPD participate in annual rehabilitation activities. Additionally, a systematic study looked for reasons why people don’t enroll in or finish cardiac RP and tried to find solutions to those reasons. The review found that between 10 and 30 percent of people who initially agreed to participate in a cardiopulmonary RP eventually dropped out due to issues.
4.2. Characteristics of intervention design

Rehabilitation was defined in all regulations as an individualized plan that would involve both physical activity and learning opportunities, as well as an initial evaluation and periodic progress checks throughout the program. The locations of the RP varied, although most practice standards for important healthcare venues including hospitals, communities, and private homes included evidence to this effect. Another discrepancy between the pulmonary and cardiac recommendations was the program length. Guidelines identifying individuals from the fields of nursing, medicine, and allied health who lead and manage RP described a wide range of program facilitation.

![Figure 3 Comparison of years with PCI procedures.](https://www.malque.pub/ojs/index.php/msj)

Treatment of coronary heart disease using percutaneous coronary intervention (PCI) has been more prevalent during the last twenty years. The number of percutaneous coronary interventions (PCI) has surpassed that of coronary artery bypass grafts. Currently, there are over 1.2 million PCI operations done annually in the United States (Figure 3). The level of CR engagement varied significantly across institutions, ranging from 0% to 36% (Figure 4).

![Figure 4 Participation in CR by facility among veterans undergoing PCI.](https://www.malque.pub/ojs/index.php/msj)

4.2.1. Location and Duration of Intervention

The cardiac RP had two practice guidelines that specifically mentioned that phase one was carried out in hospitals and phases two and three were conducted in community or home settings. The venue was recommended based on the
program phase, and all of the practice guidelines that discussed the topic mentioned either a hospital or a community setting for the RP, with all of them stating that the setting did not affect the outcomes.

4.2.2. Personnel

The individuals responsible for carrying out the RP were outlined in four recommendations. A multidisciplinary team was mentioned in every article as being necessary for the creation of the best RP. As part of the central rehabilitation team, physical therapists, physiotherapists, and exercise physiologists were specifically included. The participation of several other medical specialties varied amongst the recommendations and included psychologists, dieticians, pharmacists, occupational therapists, general practitioners, and specialists in social services.

4.2.3. Assessment of Patients

Two CR recommendations also included mid-program evaluations, while the majority of guidelines advised post-rehabilitation patient evaluations. Only one of three recommendation publications for PR recommended patient evaluation, which is an interesting difference from CR guidelines. All of the recommendations made in the guidelines about the evaluation of patients called for thorough, specific evaluations, including patient interviews to ascertain health conditions and/or measurements of exercise ability. The context of the guideline-based patient group and additional information beyond these characteristics differed between CR and PR. For instance, in CR after myocardial infarction, cardiac possibility factors and psychological state were thought to be essential outcomes to be assessed.

4.2.4. Components of Interventions

Exercise education and training were the main elements included in every practice or therapeutic recommendation. Depending on the standards, the specifics of the exercise instruction and training varied and were sometimes tailored to the patient group. The recommended fitness training treatments are included. Smoking cessation, stress management, risk factors, food, and exercise were pertinent instructional subjects.

4.2.5. Additional Program Elements

Numerous practice recommendations included the following rehabilitation components: noninvasive ventilation (NIV), inspiratory muscle exercise, psychosocial therapies, social support, and dietary assessment and nutritional interventions. Four CR practice recommendations advised dietary evaluation and nutritional management. In contrast, only one of the three recommendations for PR included a dietary component, and the other two said that there was insufficient data to support such a suggestion. There were few recommendations for nutritional components and sequence on how to check for nutritional status; the most often used method was self-reporting one’s calorie intake and diet. Body mass index and waist circumference were among the objective measurements discussed, and just one recommendation included the use of a validated screening instrument to determine caffeine and alcohol use. Guidelines for CR included dietary therapies such as goal-setting for weight reduction, diet journals, education, and cholesterol control (pharmacological and dietary). All CR practice or clinical guidelines recommended psychological screening and/or interventions, but PR guidelines did not specifically mention psychological screening and/or interventions outside. Family members should mostly participate in small-group or individual activities that are based on guidelines. Only one practice guideline specified a set number of sessions for psychosocial intervention, with each session lasting between sixty and ninety minutes: eight to ten. Two CR practice recommendations included social support, however, they did so in terms of the program’s ethos or how psychological therapies were incorporated into them rather than particular social support initiatives. There was little support for such behavior, and there were few suggestions. Five practice guidelines advocated smoking cessation; two of them included particular treatments in their direct recommendations, while the other two included them in the list of educational activities for rehabilitation. The particular guidelines-based therapies include behavior modification interventions, education, hypnotherapy, and acupuncture. Training the inspiratory muscles, oxygen treatment, and NIV were additional therapies included in the cardiac and pulmonary recommendations. A PR practice guideline did not support inspiratory muscle exercise although one CR practices guideline.

4.3. Guidelines and statement quality evaluation

Only 3 of the recommendations included in this assessment were determined to fulfill twenty-three criteria across the six domains of the AGREE II checklist when their quality was evaluated. The areas of rigor, guideline formulation, and application where the criteria were inadequately stated in CR and PR clinical recommendations were predominant. A straightforward connection between suggestions and evidence, as well as search techniques and evidence selection standards, were all absent in this field. Limited reporting was also included in the editorial independence area of the included rules. The GRADE criteria were used to evaluate the quality of the suggestions made by the guidelines, and it was discovered that 4 of them satisfied every criterion.

https://www.malque.pub/ojs/index.php/msj
4. Discussion

The findings of this systematic analysis show that the clinical practice guidelines for CR and PR, which center on treating the symptom of breathlessness, have common design principles. The programs’ design principles were in agreement in that they were described as individually tailored interventions, had durations of between six and twelve weeks, were conducted in similar settings by similar multidisciplinary staff, including patient assessments both before and after the agenda, and be built to consist of exercise instruction and learning. The finding of concordance is not unexpected since the goal of rehabilitation is to enhance health conclusion via learning, exercise preparation, and patient empowerment to treat the indication of dyspnea present in CR and PR disorders. Although the core ideas and underlying principles of CR and PR historically were identical, they were developed and assessed independently. The body of research supporting the efficacy of CR and PR programs with a focus on exercise instruction and behavior modification is constantly expanding. This might help with the possibility of creating RP in collaboration. The possibility of delivering some components of CR and PR programs jointly may be taken advantage of to benefit patients in the future, particularly those who have comorbid conditions of heart and lung disease, where breathlessness is a common symptom of both conditions. Despite the agreement, there are differences in the focus of the educational activities and other complementing parts of the RP. It is recommended that PR programs include things like NIV and oxygen therapy for particular patient groups, whereas CR programs should include things like therapy for the mind (psychotherapy). While nutritional treatment is highly recommended for lowering risk factors associated with CVD, its role in PR is less clear. These differences are to be anticipated since they help shape RP so that it meets the unique requirements of each participant. When concentrating on the psychological well-being of CR and PR patients, a divergence from concordance is seen. By combining the necessary evidence-based therapies, a program is tailored to fit the patient's requirements and personal objectives. Although the subjects covered in the CR and PR programs were similar, the way the instruction was delivered seemed to have little support from an educational framework. To provide a genuinely personalized learning experience, future studies should investigate the impact of RP’s mandated sequence for delivering subjects. This research suggests that, rather than just classifying patients as completing PR or CR, there is potential to uncover synergies in establishing lifestyle modification programs to aid in the rehabilitation of patients with dyspnea. People with COPD had a significantly increased risk of developing cardiovascular disease (OR equal to 4.98; 95 percent CI equal to 4.85 to 5.81; P.001, n equal to 1 204 100). They have a 1.76 (95 percent CI, 1.64-1.89) increased risk of arrhythmias, a 1.61 (95 percent CI, 1.47-1.76) increased risk of angina pectoris, a 1.61 (95 percent CI, 1.43-1.81) increased risk of acute myocardial infarction, and a 3.84 (95 percent CI, 3.56-4.14) increased risk of congestive heart failure compared to the general population. People with COPD have a higher risk of being hospitalized owing to a cardiovascular event, and they have a 2.07-fold (95 percent CI, 1.82-2.36) higher risk of dying from cardiovascular diseases.

Lung function decline seems to be linked to cardiovascular events via traditional CVD risk factors. It’s important to weigh the pros and cons of operating two distinct RP for people with persistent cardiopulmonary dysfunction, one labeled PR and the other CR. The low rates of patient completion seen in existing PR and CR models highlight the need of developing patient-centered, long-term solutions. About half of all referrals end up starting pulmonary rehabilitation, and of those who do start, thirty percent don't end up finishing. It has been suggested that difficulties in getting to and from PR sessions, as well as a general lack of interest in the treatment, contribute to its low uptake and completion rates. Non-attenders in CR are similar to those in other types of rehabilitation in terms of age, income, level of social deprivation, and denial of the seriousness that their doctor does not recommend CR. The patient's experience of benefit may be enhanced by tailoring a program to reduce breathlessness to the unique needs of the individual within a rehabilitation framework. Such novel approaches to rehabilitating patients who suffer dyspnea on the part of medical experts may increase participation and provide lasting benefits. It may be reasonable to pursue studies of a centralized rehabilitation paradigm that prioritizes the treatment of symptoms and the whole person by combining CR and PR therapies.

5. Conclusion

The findings of this systematic review, which focused on treating the symptom of breathlessness, show agreement in many design concepts across CR and PR clinical practice guidelines. These results point to the potential to develop synergies within RP so that they may focus on symptom management rather than aspects that are mandated based on disease processes. Future studies may concentrate on dissecting existing CR and PR programs and revamping them to be more comprehensive, individually personalized, and with a stronger emphasis on the symptoms and concerns of the patient.

6. Limitations

Furthermore, it's possible that recommendations that were released after the a priori specified search time wasn't found and weren't included in this study. In addition to searching databases, a thorough search of worldwide the general public websites about CR and PR disorders was carried out. Despite this, some important recommendations were probably missed. Overall, it was determined that several of the recommendations in the included guidelines had poor levels of
evidence, and many of them had not employed the GRADE method to evaluate the literature, which may have limited the applicability of the recommendations to clinical practice.

Ethical considerations
Not applicable.

Declaration of interest
The authors declare no conflicts of interest.

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References


