Hospital discharge and multidisciplinary guidelines for elderly patients with COVID-19: integrative review

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Abstract

Objective: to search for available scientific evidence on multidisciplinary guidelines offered by health professionals to older patients diagnosed with COVID-19 after hospital discharge. *Method*: an integrative literature review was carried out on the databases/virtual library selected: Lilacs, MEDLINE/Pubmed, Scopus and CINAHL (EBSCO). The search strategy involved use of combinations with the following Health Science Descriptors (DeCS) and Medical Subject Headings (Mesh): Elderly (Aged); Covid-19; Aftercare and Patient Discharge combined using Boolean operators "AND" and "OR". *Results*: relevant articles published between January 2019 and January 2022 were identified, of which four were retrieved for inclusion and analysis. The selected studies addressed the theme of continuity of care with the perspective of intervention in health rehabilitation and symptom management and/or supervision of the functional recovery of older patients, with guidelines devised by an interprofessional team. *Conclusion*: the study revealed the scarcity of publications on the topic of guidance provided by health care teams to older patients from the perspective of hospital discharge. The study also served to highlight the importance and need for future scientific output addressing the functional impact of COVID-19 on this population, from hospital admission to post-discharge at home, supported by strategic actions or institutional protocols that disseminate educational information preparing patients for hospital discharge and promoting self-care, well-being and quality of life of older people.

Keywords: Elderly. Patient discharge. COVID-19. Health Education.

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INTRODUCTION

COVID-19 is a disease that presents in a number of ways, ranging from asymptomatic to highly severe cases, where older people and individuals with pre-existing disease are particularly vulnerable. Some complications secondary to the disease can be significant and prolonged, affecting different organs and systems (cardiopulmonary, neurological, musculoskeletal, gastrointestinal and psychosocial). These complications often mean the patient requires a process of functional rehabilitation or provision of continued care in the home setting after hospital discharge to manage clinical and functional needs of COVID survivors[1,2].

Following acute infection, the main problems reported by older COVID-19 survivors include decline in quality of life, due to persistent symptoms involving functional impairment that confer dependence, in addition to physical, cognitive, mental and social dysfunctions. These outcomes corroborate the need for post-discharge care for patients hospitalized with severe forms of the disease[3].

Multi-disciplinary monitoring is vital to promote good progress, with the aim of restoring quality of life of patients impacted by COVID-19. The World Health Organization notes that the multi-systemic nature of the disease means an interprofessional team may be needed to manage the recovery of patients, through personalized evidence-based rehabilitation as a strategy to restore functional capacity[4].

The Brazilian Ministry of Health stipulates that rehabilitation services and their interprofessional teams should support users infected by COVID-19 and presenting functional deficits in the post-acute period. They should also embrace the demand of preparing patients for hospital discharge, coordinate complex cases, and ensure continuity of healthcare treatment[5]. However, hospital services face difficulties establishing protocols and/or basic instruments which integrate systematized information from the multidisciplinary health team, toward health prevention, promotion or maintenance, related to instructions on continued care for discharged patients after returning home.

The process of hospital discharge represent a point when patients and family members are most frail regarding understanding and processing information provided by the health team, and when it is sometimes unclear to them why the patient is being sent home while still suffering the effects of COVID-19. In this context, the interprofessional hospital team has the key goal of establishing a dialog based on trained listening, involving technical approaches to ensure self-care strategies post-discharge [6,7].

Therefore, given the limitations of hospital management and challenges faced, where it is unclear whether home-based support can monitor the patient properly amid the need to provide continued care, health teams must seek to optimize the hospital discharge processes and their follow-up and decide on the optimal timing for discharge in terms of greatest stability and support for the patient and their caregivers[8].

This scenario prompted the present integrative review of the scientific literature, to help health professionals provide structured discharge of older patients infected by COVID-19, aimed at mapping the available scientific evidence on multidisciplinary guidance offered by health professionals for older COVID-19 patients after hospital discharge.

METHOD

An integrative review was conducted based on defined stages, adopting a strategy for identifying, assessing and analyzing the existing evidence in the relevant literature on the topic, with a view to incorporating these findings into professional clinical practice. The stages were: defining the guiding research question; search strategy using health sciences descriptors; defining of inclusion and exclusion criteria with literature search, designating the information to be extracted from studies and assessment of those included; interpretation of results and synthesis of data obtained[9].

In the first stage of the study, the following guiding research question was proposed: *"What is the main multi-professional guidance offered to older patients diagnosed with COVID-19 following hospital discharge?"*

With the aim of identifying studies and documents with different types of methodological design, a search strategy was devised based on descriptors and key words in line with the purpose of the review, for application to relevant databases in health area. Boolean operators (OR, AND) were used to combine terms and perform the search. A single search strategy was developed and adapted for each information source (databases and virtual libraries), altering these as necessary. The databases and virtual library selected for searching were the Latin American and Caribbean Literature in Health Sciences - LILACS, the Medical Literature Analysis and Retrieval System Online - MEDLINE/Pubmed, Scopus and the Cumulative Index to Nursing and Allied Health Literature - CINAHL (EBSCO).

The search was conducted by combining terms from the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MESH) databases: Idoso (*Aged*); COVID-19; Cuidados Posteriores (*Aftercare*) and Alta do Paciente (*Patient Discharge*) combined using Boolean operators "AND"/"OR" (Chart 1).

The inclusion criteria of articles selected in this study were: primary studies investigating preparations for hospital discharge of older patients diagnosed with COVID-19, published in English, Portuguese and Spanish between 2019 and 2022, answering the pre-defined guiding research question, and whose full text versions were available online. This search period was elected because it represents the time window from the initial outbreak of the COVID-19 pandemic (2019) to its "less aggressive" phase (2022).

Studies on the topic, but not addressing the guiding research question, were excluded, as were duplicates, reviews, letters, editorials, news, books and chapters, as well as articles not available in full. In order to ensure methodological rigor, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) recommendations were used (PRISMA, 2020), involving the following steps for organizing studies: identification, screening (entailing the process of article selection according to the pre-defined eligibility criteria), and inclusion[10].

Chart 1. Data sources and records retrieved (1,806) on multi-disciplinary guidance offered to older patients with COVID-19 after hospital discharge. João Pessoa, Paraíba, Brazil, 2022.

Databases/ Virtual libraries	Search terms	Results
LILACS	("Patient Discharge" OR "Patient Discharges" OR "Discharge Planning" OR aftercare OR "After Care" OR "After Treatment" OR "After Treatments" OR "Follow Up Care" OR "Discharge Plannings" OR "Alta do Paciente" OR "Alta Hospitalar" OR "Alta do Hospital" OR "Planejamento da Alta" OR "Alta del Paciente" OR "Alta Hospitalaria" OR "Alta de Paciente" OR "Alta del Hospital" OR "Planificación del Alta" OR "Salida del Paciente" OR "Assistência ao Convalescente" OR "Assistência de Seguimento" OR "Assistência do Seguimento" OR "Atendimento de Seguimento" OR "Atendimento do Seguimento" OR "Cuidado de Seguimento" OR "Cuidados de Seguimento" OR "Seguimento Assistencial" OR "Cuidados Posteriores" OR "Cuidado de Seguimiento" OR "Cuidado del Convaleciente" OR seguimiento) AND ("COVID-19" OR "covid 19" OR "COVID19" OR "SARS-CoV-2" OR "sars cov 2" OR "Novel Coronavirus" OR "2019 nCoV" OR "Novo Coronavírus" OR "Nuevo Coronavirus") AND (aged OR elderly OR "80 and over" OR "Oldest Old" OR nonagenarian OR nonagenarians OR octogenarians OR octogenarian OR centenarians OR centenarian OR geriatric OR "Middle Aged" OR "Middle Age" OR idoso OR idosos OR idosa OR idosas OR "Pessoa de Idade" OR "Pessoas de Idade" OR anciano OR ancianos OR "Adulto Mayor" OR "Persona Mayor" OR "Persona de Edad" OR "Personas Mayores" OR "Personas de Edad" OR "Idoso de 80 Anos ou mais" OR centenarios OR nonagenarios OR octogenarios OR velhíssimos OR "Anciano de 80 o más Años" OR viejísimos OR geriátrico OR geriátricos OR geriátrica OR geriátricas OR "Meia Idade" OR "Mediana Edad") AND (db:("LILACS"))	49

to be continued

Continuation of Chart 1

Databases/ Virtual libraries	Search terms	Results
Medline/Pubmed	("Patient Discharge"[MeSH Terms] OR "Patient Discharge"[All Fields] OR "Patient Discharges"[All Fields] OR "Discharge Planning"[All Fields] OR "Aftercare"[MeSH Terms] OR "Aftercare"[All Fields] OR "After Care"[All Fields] OR "After Treatment"[All Fields] OR "After Treatments"[All Fields] OR "Follow Up Care"[All Fields]) AND ("COVID-19"[Mesh] OR "covid-19"[All Fields] OR "covid 19"[All Fields] OR "COVID19"[All Fields] OR "SARS-CoV-2"[Mesh] OR "SARS-CoV-2" OR "SARS CoV 2" OR "Novel Coronavirus" OR "2019 nCoV") AND ("Aged"[MeSH Terms] OR "Aged"[All Fields] OR "Elderly"[All Fields] OR "aged, 80 and over"[MeSH Terms] OR "80 and over"[All Fields] OR "Oldest Old"[All Fields] OR "Nonagenarian"[All Fields] OR "Nonagenarians"[All Fields] OR "Octogenarians"[All Fields] OR "Octogenarian"[All Fields] OR "Centenarians"[All Fields] OR "Centenarian"[All Fields] OR "geriatric"[All Fields] OR "Middle Aged"[Mesh] OR "Middle Aged" OR "Middle Age")	893
Scopus	TITLE-ABS-KEY("Patient Discharge" OR "Patient Discharges" OR "Discharge Planning" OR Aftercare OR "After Care" OR "After Treatment" OR "After Treatments" OR "Follow Up Care" OR "Discharge Plannings") AND TITLE-ABS-KEY("COVID-19" OR "covid 19" OR "COVID19" OR "SARS-CoV-2" OR "sars cov 2" OR "Novel Coronavirus" OR "2019 nCoV") AND TITLE-ABS-KEY(Aged OR Elderly OR "80 and over" OR "Oldest Old" OR Nonagenarian OR Nonagenarians OR Octogenarians OR Octogenarian OR Centenarians OR Centenarian OR geriatric OR "Middle Aged" OR "Middle Age")	704
CINAHL (EBSCO)	("Patient Discharge" OR "Patient Discharges" OR "Discharge Planning" OR Aftercare OR "After Care" OR "After Treatment" OR "After Treatments" OR "Follow Up Care" OR "Discharge Plannings") AND ("COVID-19" OR "covid 19" OR "COVID19" OR "SARS-CoV-2" OR "sars cov 2" OR "Novel Coronavirus" OR "2019 nCoV") AND (Aged OR Elderly OR "80 and over" OR "Oldest Old" OR Nonagenarian OR Nonagenarians OR Octogenarians OR Octogenarian OR Centenarians OR Centenarian OR geriatric OR "Middle Aged" OR "Middle Age")	160

The protocol containing these descriptors, databases of the virtual library and number of texts retrieved on the databases, was previously registered on the online repository *Figshare,* available with open access at DOI: https://doi.org/10.6084/m9.figshare.19294298.v1.

The results of the searches were exported to EndNote, a citations manager to organize and identify duplicate articles for removal[9], a stage performed to ensure methodological rigor of the search. Subsequently, the studies were exported to the Rayyan[11] app for selection according to the exclusion and inclusion criteria defined, listing the respective reasons. During this stage, 2 experienced reviewers were recruited, having been provided with the necessary explanations on how to proceed by the first author. The file produced by the Ryyan app was then divided between this pair of reviewers who, working individually and independently, in a blinded fashion, critically assessed the criteria and methods used in the studies identified in order to determine their methodological validity. Publications not meeting the eligibility criteria were excluded, while studies with potential for inclusion were retained, as per recommendations for this type of review[12,13].

The data from the search were analyzed using an online tool developed by the researchers (synthesis matrix), according to the instructions provided through a validated form[14], adapted to the specificities of this review. The main parameters included study title, author, publication year, country, language, study objective, design type and methodological characteristics, population and principal results, to confer reliability to the present study.

After screening of the articles based on titles and abstracts, their eligibility was determined by in-depth reading of the full texts, as per recommendations for this type of review[13]. No changes were necessary in

as far as all texts were deemed eligible for inclusion in the final review. Any disagreements and doubts between the reviewers were discussed and resolved at a meeting with the first author until 90% concordance was reached among them. References obtained from the gray literature were considered solely for refining the discussion of the findings.

The quality of evidence of the studies reviewed was classified into levels base on the following guidelines: 1-evidence obtained by systematic review or meta-analysis; 2-derived from well-designed randomized controlled clinical trials; 3-obtained by well-designed non-randomized clinical trials; 4-obtained by well-designed cohort and case-control studies; 5-obtained by systematic review of descriptive qualitative studies; 6-originating from descriptive qualitative studies; and 7- from opinion of authorities and/or reports of expert committees[15].

Methodological quality was ensured by using the standardized critical appraisal tool Checklist for Prevalence Studies of the Joanna Briggs Institute (JBI)[16] for measuring the level of quality of the studies included in this review, comprising 9 questions applied independently by the reviewers.

The results of this study are expressed descriptively and in table form (synthesis chart) according to its objective. The characteristics of the studies, principle results and limitations were highlighted, in addition to the possibility of guiding future investigations. Thus, a descriptive summary of the tabulated results was also produced.

RESULTS

A total of 1,806 records were identified (January 2019 to January 2022) from the sources of data previously outlined in the Methods section. After exclusion of duplicates and selection of studies based on title and abstract, 171 were analyzed in full, of which only 4 were included in the final review, having met the pre-defined inclusion criteria (Figure 1). Of the initial 1,806 studies identified, 49 were found on LILACS, 893 on Medline/Pubmed, 704 on Scopus and 160 on CINAHL (EBSCO).

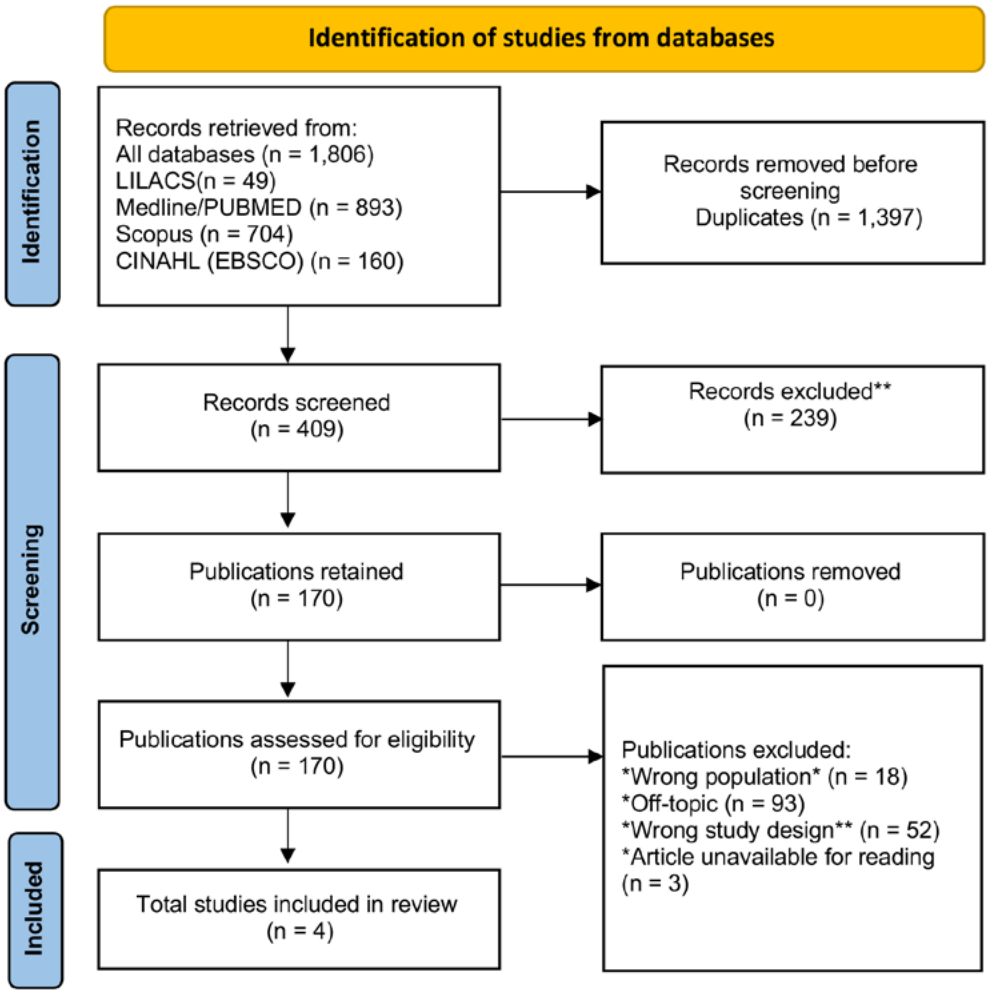
Results revealed that most of the articles published and included in this integrative review pertained to a recent timeframe in the literature, predominantly published between 2021 and 2022 during the pandemic outbreak. The studies were conducted internationally, mostly on the Asian continent (50%), with a predominance of studies in the area of physiotherapy (50%). The target population were older patients diagnosed with COVID-19 and thus, aged 60 years or over; the professional guidance provided to patients was mostly in verbal form (75%), whereas discharge instructions tended to be in written form (25%).

The type of methodological approach employed in the studies reviewed were a Randomized Clinically Controlled Trial (25%), a Descriptive Observational Study (25%), a Case Study (25%), and a Retrospective study of Medical Records (25%).

For level of evidence of the studies reviewed, 1 article (25%) (A1) was classified as level 2 – a randomized clinical trial, while the remaining studies (75%) (A2, A3 and A4) were descriptive and classified as level 6.

Regarding the results of the methodological quality analysis using the tool by the Joanna Briggs Institute (JBI), the assessment of the studies included in this review are presented in Chart 2, where A1 and A3 were rated as having "MODERATE", while A2 and A4 were deemed as "HIGH" methodological quality.

The characteristics of publications reviewed (Chart 3) include article, title and database in which study was published, the authors and year of publication, method design type, country of origin, objective, and principal results.



*Wrong population defined as studies not including individuals aged ≥ 60 years and who were previously hospitalized for COVID-19; **Wrong study design defined as reviews of available scientific literature, whether systematic, meta-analyses or integrative.

Figure 1. Flow diagram of selection process of articles on multi-disciplinary guidance offered to older patients with COVID-19 after hospital discharge. João Pessoa, Paraíba, Brazil, 2022.

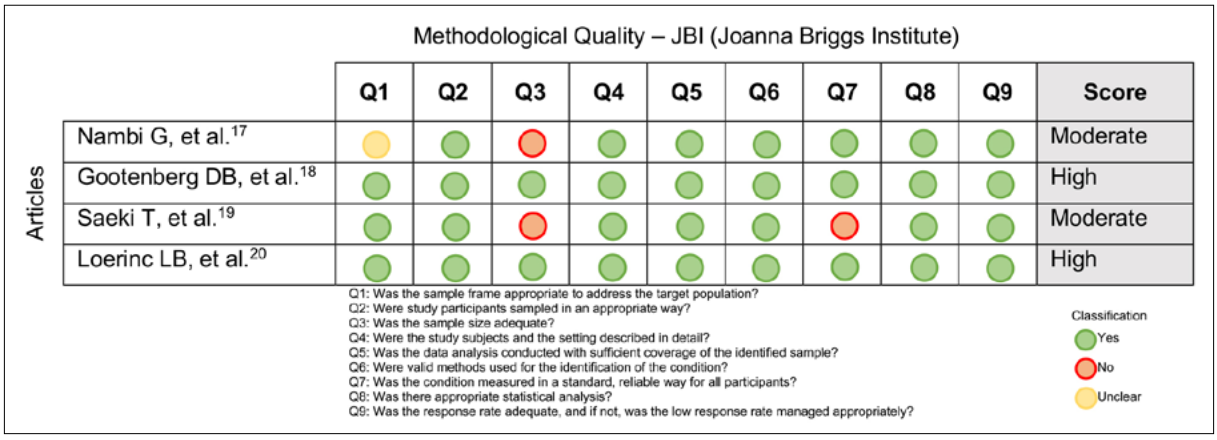


Chart 2. Characteristics of the methodological quality of publications included in the integrative review on multi-disciplinary guidance to older patients with COVID-19 following hospital discharge. – João Pessoa, Paraíba, Brazil, 2022.

Chart 3. Characteristics of publications included in integrative review on multi-disciplinary guidance to older patients with COVID-19 at hospital discharge – João Pessoa, Paraíba, Brazil, 2022.

Identifier of study	Title / Authors/ Databases	Method / Country / Year of Publication	Objective	Principal Results
A1	*Comparative effectiveness study of low versus high-intensity aerobic training with resistance training in community-dwelling older men with post-covid-19 sarcopenia: A randomized controlled trial* / Nambi G, Abdelbasset WK, Alrawaili SM, Elsayed SH, Verma A, Vellaiyan A, Saleh AK. / MEDLINE/Pubmed	Randomized controlled trial / Saudi Arabia / 2022	To find and compare the clinical and psychological effects of low and high-intensity aerobic training combined with resistance training in community-dwelling older men with post-COVID-19 sarcopenia symptoms.	All participants (n=38) had post-COVID-19 sarcopenia and received resistance training to improve clinical and psychological measures; they were randomized into two groups: low-intensity aerobic training group and high-intensity aerobic training group. Low-intensity aerobic training exercises are more effective in improving the clinical (muscle strength) and psychological (kinesiophobia and quality of life) measures than high-intensity aerobic training in men with post-COVID 19 sarcopenia.
A2	*Developing a pulse oximetry home monitoring protocol for patients suspected with covid-19 after emergency department discharge* / Gootenberg DB, Kurtzman N, O'Mara T, Jennifer YG, Chiu D, Shapiro NI, Dagan A. / MEDLINE/Pubmed	Prospective observational study / United States of America(USA) / 2021	to assess feasibility and describe a protocol for ED-based outpatient pulse-oximetry monitoring with structured follow-up and to determine rates of ED return, hospitalisation and hypoxia among participants.	The patients (n=76) used instructions at home for self-referral to the ED at a higher rate than direct referral during phone call checkin.
A3	*Long-Term Decreased Exercise Capacity of covid-19 Patients Who Received Mechanical Ventilation in Japan: A Case Series* / Saeki T, Ogawa F, Matsumiya M, Yamamura M, Oritsu H, Nonogaki M, Nakamura T. / MEDLINE/Pubmed	Case study / Japan/ 2021	To observe the long-term exercise capacity of patients who received mechanical ventilation due to COVID-19–associated ARDS (Acute Respiratory Distress Syndrome)	After hospital discharge, patients (n=4) were advised to engage in home exercises, such as walking, lower-limb muscle strength training using a closed kinetic chain, upper-limb strength training using the Thera-Band (Hygenic Akron,OH), and balance training.

to be continued

Continuation of Chart 3

Identifier of study	Title / Authors/ Databases	Method / Country / Year of Publication	Objective	Principal Results
A4	*Discharge characteristics and care transitions of hospitalized patients with covid-19* / Loerinc LB, Scheel AM, Evans ST, Shabto JM, O'Keefe GA, O'Keefe JB. / MEDLINE/Pubmed	Retrospective review of medical records/ United States of America (USA) / 2021	To describe the demographics, baseline comorbidities,	Despite high levels of electrolyte abnormalities and Acute Kidney Injury (AKI) during admission, only 31 patients out of a total 52 were advised and instructed to perform follow-up bloodwork. -The majority of patients (225, 72.6%) had documented advice to continue isolation at discharge, but only 56 (18.1%) patients had documentation of specific instructions on the duration of isolation, most often 14 days from discharge (median 14 days, range: 3–14).

After full reading of the articles selected, common themes emerged which were elected in 2 categories and pooled to focus interpretations of the review: "Older patients with persistent symptoms recruited in local hospitals to provide continuity of the care process through rehabilitation" and "Management of symptoms and/or supervision of functional recovery".

DISCUSSION

Continuity of the care process through rehabilitation

Sarcopenia and COVID-19 appear to be predictors of worse prognosis in the older population at large[22]. Intervention programs for older individuals are important, where physiotherapy can prevent complications due to frailty and diminished functional capacity which arose during the lockdown period amid the pandemic[23]. Moreover, physical activity throughout the life span can promote mitochondrial health in all tissues and represents an effective countermeasure against sarcopenia[21].

In Saudi Arabia, study A1, investigating sarcopenia and physical dysfunction in older men impacted by COVID-19 lock downs or admitted to hospital, found that these individuals needed to engage in regular low-intensity exercise to obtain best functional outcomes, including quality of life[17]. Continuity of the care process through a rehabilitation approach with low-intensity training proved a key care management strategy for these individuals left frail post-discharge or after lockdown. Also, the study underscores the importance of establishing instructions for performing physiotherapy exercises properly under direction.

In Japan, sarcopenia was considered a risk factor for infection by Sars-Cov-2 in older people and individuals with chronic non-communicable diseases, and also exacerbated the chances of severe COVID-19 involving cytokine storms and respiratory insufficiency[24].

In Spain, sarcopenia, besides being considered a clinical condition associated with COVID-19 affecting hospitalized older patients with acute or chronic infection, also posed a high risk of mortality and nutritional deficit in this group[25].

The main health advice in follow-up rehabilitative physiotherapy reported in study A1 included low-intensity aerobic exercises given by a trained physiotherapist, with proper COVID-19 guidelines. Sessions started with warm-ups, including static stretching of upper and lower limb muscles. Subsequently participants engaged in low-intensity aerobic exercises, including treadmill and cycle

ergometer, followed with resistance training and gentle stretching of all major muscles[17].

Articles A1 and A3 provided guidance on physiotherapeutic rehabilitation as a form of continued care for older patients with COVID-19 post-discharge. Complementary studies show that physiotherapists play a key role in combatting the disease by promoting recovery of functional capacity and the respiratory system, and the process of management in health care networks[17,19,26,27].

Besides these specialists, other health professionals have been important in combatting COVID-19 in the area of in-patient hospital care, such as occupational therapists enhancing functional occupational performance with independence/autonomy, preparing patients for discharge and reintegration into the community[28]; psychologists with intervention strategies during and after hospital stays, as well as psychological support for patients and family members[29]; speech-language therapists with recommendations and education on vocal hygiene, recovery from dysphagia and dysphonia, guidance on tracheostomy, prevention of broncho aspiration and adaptation to food consistencies[30,31], in addition to physicians and nurses in caring for patients infected with the disease.

With respect to post-COVID-19 follow-up needs, in a Japanese study on care delivered to older patients, a pulmonary physiotherapy rehabilitation protocol was devised with guidance on home-based exercises following hospital discharge, such as walking, training, lower-limb muscle strength training using a closed kinetic chain, upper-limb strength training using the Thera-Band, and balance training.

Among the articles reviewed on post-discharge rehabilitation and physiotherapy advice, there was a lack of reporting of type of methodology adopted at the time of offering this guidance, such as health education tools for use by patients. To this end, one potential post-discharge monitoring strategy for guiding patients constitutes the use of printed copies or plan of rehabilitation via smartphone for tele-monitoring and tele-support, including pre-recorded videos of exercises based on early intervention[18,32].

Along the same lines of disease rehabilitation post-discharge, a study published in Singapore showed that the physiotherapy team provided customized care, including printed materials on exercises to be performed at home independently. The main guidance given included: walking and climbing stairs; range of motion exercises; limb strengthening exercises; energy conservation, stimulation, planning and prioritizing activities; diaphragm respiration exercises; and walking aids and emergency contacts[19].

Even when treatment at a rehabilitation service is required, technical health care advice is still needed during the period between the return home and seeking of a specialist rehabilitation service in the health care network, to provide continued self-care treatment to promote quality of life and well-being of older people with prolonged symptoms, even after hospital discharge.

The scientific findings on deficits in physical functioning of older adults after COVID-19 validate the recommendations to refer survivors for individualized multi-component evaluation[1], aimed at identifying clinical needs remedied through health education to promote and maintain health and, whenever possible, to remove or reduce the need for prolonged rehabilitation interventions.

Management of symptoms and/or supervision of functional recovery

Regarding effective strategies for monitoring COVID-19 patients, a North-American study suggested that out-patient pulse oximetry can potentially help in the challenge of monitoring patients with COVID-19 after discharge, and advise them to return for treatment when necessary. The key factors that enabled successful monitoring of patients were: a multidisciplinary protocol involving ED physician, technician, nurse and electronic health record; effective follow-up instructions and phone calls; and health system communication with patient, ED physician and primary care physician[18]. Data from study A2[18] led to instructions for self-referral to the ED, providing patients with monitoring and follow-up of respiratory function based on oximetry,

besides giving written instructions on identifying hypoxia and on using the device (oximeter), with a document attached to the patient´s discharge packet.

Such monitoring is seldom workable in Brazil, since the vast majority of visits take place under the National Health System (SUS) for patients that typically cannot afford to purchase these devices.

Around 80% of patients reported more severe cognitive impairments associated with the degree of pulmonary dysfunction over the long term, respiratory symptoms, suggesting a possible link to restricted delivery of oxygen to the brain[30]. Cognitive sequelae (73% at discharge, 46% at 1 year and 47% at 2 years after discharge) indicate that severe cases of the disease associated with acute respiratory distress syndrome (ARDS) may negatively impact cognitive performance of survivors over the long term[33].

One of the strengths of the North-American study (A2[18]) is the preparation of physicians, ED technicians and nurses to monitor symptoms, even if sporadically, and the written strategy of instructions with a health education approach based on self-care by the patient to identify the limits of COVID-19 sequela.

Many patients requiring hospital care for the disease had persistent symptoms, even 110 days after discharge, including fatigue (55%), dyspnea (42%), memory loss (34%), concentration problems and sleep disturbances (28% and 30.8%, respectively), requiring long-term follow-up and supervision, besides rehabilitation programs[34].

Prolonged symptoms were found in studies conducted in France[35], Turkey[36], the United Kingdom[37], the United States[38] and Brazil[39] showing that post-discharge, patients still had respiratory, cardiological, psychological, emotional and social problems.

A strong predictor of the need for follow-up, both for patients who were hospitalized and those discharged home directly from the ED, was older age. Multidisciplinary follow-up of these patients proved crucial to prevent late symptoms[40]. These findings are consistent with the results of study A2[18], whose participants had a median age of 51.7 years, with regard to patients with COVID-19 that required closer monitoring and guidance post-discharge.

A significant contingent of COVID-19 survivors presented factors of functional disability and psychological disorders, such as anxiety at discharge[41]. The risk persisted and the data corroborates the need for following up patients after discharge for continued care, with the use of protocols to assess them, preventing complications of COVID-19, besides providing the necessary resources to optimize home-based care[42].

The study performed in Georgia (A4), exploring post-discharge care transitions of hospitalized patients with COVID-19 and reporting hospital information with data compiled from charts and care plans, revealed that little is known about the follow-up healthcare needs of patients hospitalized COVID-19 after hospital discharge.[20]. In Brazil, a similar study recommended an interprofessional team approach with deployment of preventive measures, rehabilitation techniques clinical management strategies to address the care and quality of life of patients[43].

The results of the North-American study showed that 75 patients (24.2%) required some home service at discharge, including care provided by physiotherapists or occupational therapists (13,5%), nursing (5,2%) and home oxygen therapy (41,13.2%)[44]. Patients with memory loss, mental confusion or cognitive impairment can be referred for neurology care, physiotherapy and occupational therapy or for ENT and speech-language therapy in cases of dysphagia[45]. These results highlight the importance of coordinated efforts by an interprofessional team, with interventions and technical approaches centering on holistic health care for patients recovering from COVID-19 complications.

Regarding cognitive impairment, a Brazilian study showed that occupational therapists have developed educational material for prevention and management of *delirium i*n patients with COVID-19 in the hospital setting[46]. In another investigation[47], severe neurological disorders, such as *delirium*, encephalopathy and altered mental state were associated with the need for continued rehabilitation.

In the A4 study, the majority of patients (72.6%) had documented advice to continue isolation at discharge, but only 18.1% received specific instructions on the duration of isolation. Despite high levels of electrolyte abnormalities and Acute Kidney Injury during admission, only 31 patients were advised and instructed to perform follow-up bloodwork[20,48].

After discharge, patients recovering from COVID-19 should remain under lockdown conditions and stay alert to rest, nutrition, body temperature and infection prevention, besides undergoing routine control blood tests to detect Sars-Cov-2 and, when necessary, reassessment with a chest CT scan[46].

If these patients attain a level of clinical stability in the hospital setting, the medical teams should decide on the timing of discharge home. However, upon returning home patients often fail to understand or recognize the significance of persistent symptoms sufficiently to seek health services for reassessment[49]. There is a dearth of publications exploring the capacity of patients to appreciate their own health care process, identify their actual needs after discharge from hospital for COVID-19, and also grasp the instructions and directions given on managing persistent symptoms in order to postpone the need for rehabilitative intervention.

This review showed that Asian countries had the highest scientific output (50% of publications) of studies on the topic. Bibliometric indicators reveal that many studies on the prevention and control of COVID-19 were conducted in China, contributing valuable data to inform health care practices worldwide, having become the epicenter of the pandemic[47-49].

Of the four articles[17-20] analyzed in this review, all addressed the subject of continued care post-discharge. Concerning the question of multi-disciplinary guidance and its methodology, it is clear there are no concerted efforts to incorporate this type of approach into interventions, but rather to ensure follow-up involving supervised rehabilitation of functional deficits.

Based on the articles analyzed on the topic, a limitation was evident in the conception of methodologically robust studies with higher levels of scientific evidence to inform interprofessional teams in the hospital setting on the use of intervention strategies centered on health prevention, promotion and maintenance, favoring broader, safer and effective self-care.

The study has some limitations, including the lack of scientific output with materials and information on the topic investigated, revealing a gap in knowledge on hospital care and health education strategies aimed at interprofessional planning of the discharge of older patients with COVID-19. However, the study adds to the knowledge in the field, underscoring the importance of the topic and indicating the need for further contributions in theory and practice toward novel responses/solutions to address the problems seen in older patients post-COVID-19 after discharge.

CONCLUSION

The main publications covered in this review addressed care continuity through interventions involving rehabilitation and symptoms management and/or overseeing functional recovery, with guidance provided by multi-professional teams.

AUTHOR CONTRIBUTIONS

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