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Health psychology on long COVID: Strategies based on NICE and WHO guidelines recommendations

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ABSTRACT

Background. The chronic aspect that begins to characterize long COVID appeals to the need for interventions proposed by institutions such as the World Health Organization (WHO) and the National Institute for Health and Care Excellence (NICE) to manage the disease, emphasizing behavioral change and self-care. **Objective.** To perform a narrative review of the psychological literature that offers intervention strategies in alignment with the recommendations of the long COVID management guidelines proposed by WHO and NICE. **Method.** MEDLINE, EBSCO, Google Scholar, SciELO, PsycINFO, PubMed, Cochrane, and CONRICYT databases were consulted, using Boolean operators and keywords for an exhaustive search. **Results.** The contributions of the studies were categorized into five intervention strategies based on WHO and NICE recommendation guidelines: Psychoeducation, Self-care, Support networks, Relaxation, and Goal setting. These are given a brief introduction and their relevance to the management of long COVID symptomatology is described. **Discussion and conclusion.** The persistent condition of COVID-19 symptoms makes it necessary to recognize that lifestyle changes must be made, primarily focused on health care and prevention of worsening disease sequelae. These lifestyle changes can be achieved through behavior modification, focusing on protective factors such as education, self-care, support networks, relaxation techniques and, setting appropriate goals.

Keywords: Health psychology, long COVID, World Health Organization, National Institute for Health and Care Excellence, SARS-cov-2, narrative review.

RESUMEN

Antecedentes. El aspecto crónico que empieza a caracterizar al COVID persistente hace un llamado a la propuesta de intervenciones desde instituciones como la Organización Mundial de la Salud (OMS) y el National Institute for Health and Care Excellence (NICE) para lograr un manejo de la enfermedad, el cambio conductual y el autocuidado. **Objetivo.** Elaborar una revisión narrativa sobre la literatura psicológica que ofrece estrategias de intervención acordes a las recomendaciones de las guías de manejo del COVID persistente propuestas por la OMS y el NICE. **Método.** Se consultaron las bases de datos MEDLINE, EBSCO, Google Scholar, SciELO, PsycINFO, PubMed, Cochrane y CONRICYT. Se utilizaron operadores booleanos y palabras claves para una búsqueda exhaustiva. **Resultados.** Las aportaciones de los estudios fueron categorizadas en cinco estrategias de intervención basadas en las guías de recomendación de la OMS y el NICE: Psicoeducación, Autocuidado, Redes de apoyo, Relajación y Establecimiento de metas. En ellas se realiza una breve introducción y se expone su relevancia para el manejo de la sintomatología del COVID persistente. **Discusión y conclusión.** El padecimiento persistente de los síntomas del COVID-19 hace necesario reconocer que deben realizarse cambios en el estilo de vida, principalmente enfocados en el cuidado de la salud y la prevención del empeoramiento de las secuelas de la enfermedad. Estos cambios en el estilo de vida podrán lograrse mediante la modificación de la conducta, orientándola a factores protectores como la educación, el autocuidado, las redes de apoyo, las técnicas de relajación y el establecimiento de metas adecuadas.

Palabras clave: Psicología de la salud, COVID persistente, Organización Mundial de la Salud, National Institute for Health and Care Excellence, SARS-cov-2, revisión narrativa.

BACKGROUND

Conceptualization of long COVID

There are several reviews comparing the long-term effects suffered by people in past pandemics such as the Russian flu (1889-1892), the Spanish flu (1918-1919), and even comparing the sequelae of previous coronaviruses such as MERS-CoV and SARS-CoV-1, where some side effects of the infection became chronic conditions (Ashton, 2020; Higgins, Sohaei, Diamandis, & Prassas, 2020; Stefano, 2021).

In this sense, the concept of long COVID is used to describe the secondary –or persistent– aftereffects that people recovered from COVID-19 present for a longer period than expected, approximately ≥ 12 weeks (Mahase, 2020). It has been argued that those who had mild and moderate COVID-19 symptoms, and were even asymptomatic, could present this type of effects, becoming so severe that they would entail an inability to return to their normal pre-COVID life due to the need for constant medical attention (Yelin, Margalit, Yahav, Runold, & Bruchfeld, 2021).

Another feature of long COVID has been the development of new symptoms, even weeks or months after the disease (Raveendran, 2021a). The authors argue that this is because, although microbiological recovery is present upon negative PCR testing, clinical recovery would be far from being achieved. Reasons for this are the extent of organ damage suffered during the disease, persistent inflammation, or aspects related to the generation of the immune response (Raveendran, Jayadevan, & Sashidharan, 2021b, p. 871).

Due to this, it has been argued that part of the conceptualization of long COVID should address more than microbiological criteria (such as obtaining negative results for COVID-19) and focus on clinical improvement by emphasizing the disease experience of patients (Long COVID, 2020). This aspect is relevant since it would prevent the severity of the conditions present in people with long COVID from being minimized, and they would be able to access the corresponding health services (Callard & Perego, 2021). An example of this is the work of Nabavi (2020) in which he presents the experiences of people with long COVID regarding the different symptoms they have experienced, but also the changes and modifications they have made to better cope with these conditions, an aspect that will be discussed in more detail in the psychological strategies proposed below.

Impact of long COVID

More than 50 long-term effects have been reported to be related to long COVID, where it is estimated that 80% of the people infected with SARS-CoV-2 would develop one or more effects between 14 and 110 days after infection, the most common being fatigue, headaches, attention disorders, hair loss, and dyspnea (Lopez-Leon et al., 2021). Among the wide variety of long-term effects, shortness of breath, palpitations and chest pains may be observed, which are thought to be mediated by impairments in the autonomic nervous system during infection (Dani et al., 2021). More specifically, it has been observed that different body systems are affected, such as the immune system –arthritis or pediatric multisystemic inflammatory syndromes–, the hematological system –vascular hemostasis, blood coagulation–, the pulmonary system –respiratory failure, pneumonia, pulmonary vascular damage, pulmonary vascular damage, and pulmonary fibrosis–, cardiovascular system –myocardial hypertrophy, cardiac hypertrophy–, gastrointestinal, hepatic and renal systems –diarrhea, nausea, vomiting, abdominal pain, anorexia, gastrointestinal bleeding–; musculoskeletal system –immune–mediated skin diseases, psoriasis, and lupus–, nervous system –loss of smell, taste and hearing, convulsions, confusion, nerve pain, cognitive impairment–, and in mental health –stress, depression, and anxiety– (Mandal et al., 2020; Leta et al., 2021; Silva et al., 2021; The Lancet Neurology, 2021).

Without leaving aside the physical impact of these sequelae, there have been calls to consider equally pressing the psychosocial impact of long COVID (Llach & Vieta, 2021), since, according to the authors, two thirds of hospitalized patients present clinically relevant cognitive impairments that impact both their quality of life and their daily functioning, reaching affected rates of up to 80% for severe cognitive difficulties even four months after discharge from hospital (Taboada et al., 2021; Miskowiak et al., 2021).

From the above, it has been observed the presence of post-traumatic stress in the population who suffered from the infection, as well as sleep problems, so it has been suggested to address the self-stigma and work on mental health to reduce stress and anxiety resulting from the disease (Mahmoudi et al., 2021). In this sense, the deterioration of mental health has been argued to be due to stressful experiences during and after the disease, especially in people with pre-existing psychiatric conditions (Sher, 2020a), the process of adaptation and learning about the diagnosis, self-care behaviors to avoid infecting close people, managing the symptoms of the disease, coping with the hospitalization process, possible admission to intensive care units and loss of income due to the convalescence of the disease (Sher, 2020b). Considering the previous, it is suggested that, in people with long COVID, the presence of psychiatric symptoms –depression, anxiety, PTSD, and cognitive impairment–, neurological symptoms –anosmia, ageusia, dizziness, headache, and seizures–, as well as physical symptoms –cough, fatigue, dyspnea, and pain– would contribute to the presence of suicidal ideation and suicidal behaviors (Sher, 2021).

While it appears that the literature related to long COVID focuses on persistent symptoms in adults, it has been reported that the pediatric population is also similarly affected, with up to 17% of the population under 16 years of age infected with persistent symptoms up to five weeks after illness (Office for National Statistics, 2021). The symptoms presented by the pediatric population are similar to those presented by the adult population, however, it appears that the symptoms are described as "fluctuating" and of "late onset" (Simpson, Chew-Graham, & Lokugamage, 2021).

Identification of long COVID

Due to the impact addressed in the previous section that the long COVID condition has on people's health, it has been posited that, even if a small percentage of the total population that has become ill with COVID-19 were to go on to develop long COVID, it would be enough to place a large demand on health services for monitoring the effects and treatment (Meeting the challenge of long COVID, 2020). In this situation, in a disperse approach, proposals have been made for the diagnosis of this condition. One case is that proposed by Raveendran (2021a) who, based on clinical criteria such as the presence of long COVID symptoms, and considering a specific period after SARS-CoV-2 infection, would establish confirmed, probable, possible, or doubtful diagnoses of long COVID. Despite this, Sykes et al. (2021) have found a lack of correlation between the severity of the disease with the symptoms experienced in the follow-up, suggesting that a relevant aspect in the approach to long COVID should consider psychological and neuropsychiatric elements to treat the possible post-traumatic stress caused by the irruption of a lethal virus in people's daily lives. This is relevant because qualitative studies (see Ladds et al., 2020; Humphreys, Kilby, Kudiersky, & Copeland, 2021) highlight the psychological burden of adapting daily routines to physical capacities weakened by the long-term effects of the disease, in addition to coping with stress and uncertainty about the prognosis of their condition, so that a multidisciplinary approach, both in the definition and treatment, is necessary when considering the physical, cognitive, psychological, and social manifestations present in the condition (Halpin, O'Connor, & Sivan, 2021; Higgins et al., 2020).

Other approaches to the diagnosis of long COVID have been made by Sudre et al. (2021), who identified related attributes such as having presented more than five symptoms during the disease, being older, having a higher body mass index and female sex. Graham et al. (2021) have suggested that the higher prevalence of long COVID in women, and comorbidities such as cardiovascular disease, diabetes, and hyperlipidemia, would suggest an autoimmune etiology for the condition.

Despite the heterogeneity of the symptoms reported in this and the previous section, rapid guidelines for the management and care of long COVID have already been developed by both the World Health Organization (WHO; Rajan et al., 2021) and the National Institute for Health and Care Excellence (NICE, 2020a), which, among other documents, will be addressed in the following section.

Current approaches to long COVID

It has been proposed to approach the symptomatology of long COVID based on the affected organs, allowing an action in line to anticipate complications and the management of chronic COVID-19 affectations (Baig, 2021). Similarly, the importance of multidisciplinary work has been emphasized for the management of the condition, involving physicians, occupational therapists, medical rehabilitation specialists, physiotherapists, and mental health personnel for the management of physical and psychological symptomatology (Mendelson et al., 2020).

It has been argued that guidelines for the management of long COVID should represent the complexity of the condition by providing clear information on the natural history of long COVID, guidance addressed to the healthcare professional for its identification, and the correct management of symptomatology (Gorna et al., 2021). The WHO, as well as researchers, have raised the need to prepare health policies to address this situation that emphasize the registration of affected people, the development of guidelines and multidisciplinary services, involving the patients themselves to improve these offers through their experiences (Ladds et al., 2021; Rajan et al., 2021).

The National Institute for Health and Care Excellence (NICE, 2020b) has considered important aspects such as self-care, multidisciplinary rehabilitation, monitoring and follow-up of symptomatology, considering a special emphasis on geriatric and pediatric population. However, it is true that this first version has been questioned due to the vagueness of its recommendations given the lack of knowledge about the nature, development and efficacy of treatments for long COVID (Sivan & Taylor, 2020; Venkatesan, 2021). In an attempt to provide clarity at least on what might be considered "non-medical management" of long COVID, the objective of this narrative review is to describe possible psychological strategies to address the recommendations made by both WHO (Rajan et al., 2021) and NICE (2020a) for the management of long COVID.

Health psychology

Health psychology encompasses both behavioral medicine and behavioral health and is understood as an area of psychology focused on the educational, scientific, and professional contribution to health promotion, disease prevention, and etiological identification of disease, as well as elucidation of the association between health, disease,

and related dysfunctions (Matarazzo, 1980). It plays an important role in the evaluation, diagnosis, explanation, treatment, and modification of behaviors related to the process of health and disease, as well as in the improvement of the health system (Oblitas, 2008a; 2008b). Thus, health psychology provides a theoretical and conceptual framework to elucidate the relationship between health and lifestyles (Bazán, 2003).

Specific to the current pandemic context, it has been argued that health psychology would provide insight into how people respond to and cope with the changes in their lives brought about by the pandemic (Arden & Chilcot, 2020). The involvement of health psychology professionals would mean being able to meet educational needs regarding illness to address gaps in care between inpatient and outpatient settings (Edwards et al., 2020).

Considering that scarce psychological literature has covered health behaviors, focusing mostly on associated psychopathology, there is a need for the dissemination of strategies that focus on protective aspects of health recovery aimed at people with long COVID (Freedland et al., 2020; Hansel, Saltzman, & Bordnick, 2020). Therefore, the aim of this study is to make a narrative review on the management of long COVID by proposing psychological intervention strategies that, following the recommendations of the NICE and WHO guidelines for the management of this disease, may be appropriate.

METHOD

A narrative review was made with the aim of developing an interpretation of the theoretical contributions and results that may contribute to the management of long COVID, according to the objectives proposed by the guidelines of recommendations published by NICE and WHO. A literature search was conducted on the topics that, within the guideline recommendations, were considered as the objectives of the "non-pharmacological management of long COVID," such as "Educational interventions," "Self-care," "Support networks," "Relaxation techniques," and "Goal setting". To ensure that the topics listed were included in psychology literature, literature searches were carried out using Boolean operators in specific searches in the MEDLINE, EBSCO, Google Scholar, SciELO, PsycINFO, PubMed, Cochrane, and CONRICYT databases, searching both in English and Spanish from 1990 to 2021. Those Booleans operator used were "Educational intervencions" AND "Psychology," "Self-care" AND "Psychology," "Support networks" AND "Psychology," "Relaxation techniques" AND "Psychology," and "Goal setting" AND "Psychology." Additionally, to achieve a more exhaustive search, key words were used in each of the searches, such as "interventions," "COVID-19," and "SARS-CoV-2,"

Exclusion criteria used were that the year of publication was older than 1990, articles were not approved by two independent health professionals who revised articles, and that the article was not made by psychologists. This information can be seen on Figure 1. It is important to highlight that, during the literature review, an article in portuguese (Belomé & Ondere, 2017) was found and included because the two health professionals considered it relevant for the conceptual contribution it would provide for educational interventions, being the sole study included that did not fulfill the language of publication criteria.

The analysis plan for the articles retrieved was based on the relevance of the theoretical and practical arguments proposed by the authors, which were then evaluated by two health professionals not related to this narrative review. From the total 25 articles reviewed, six were theoretical articles, two qualitative studies, nine descriptive studies, two narrative reviews, five studies with experimental designs, and one systematic review. The diversity of research designs was accepted due to the aim of this narrative review, which is to provide both theoretical and conceptual overviews as well as the practical implications of psychological intervention strategies for the management of long COVID.

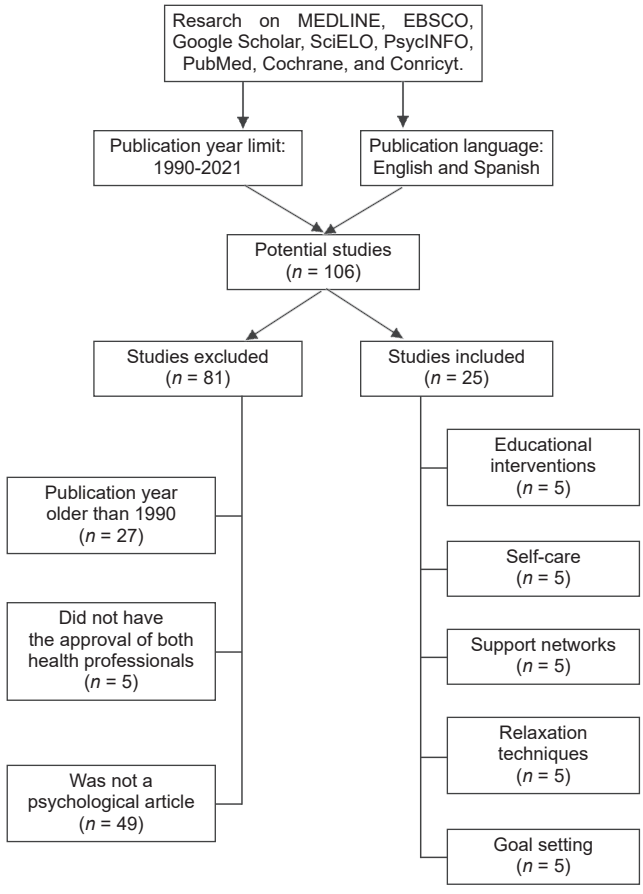

Figure 1. Flow chart.

RESULTS

The characteristics of the studies reviewed that will be used as bibliographic support for the strategies proposed by WHO (Rajan et al., 2021) and NICE (2020a) are shown in Table 1.

Psychoeducation

In the review of the evidence for the intervention's designs for the management of long COVID by NICE (2020a), the importance of educational interventions to provide information and thus reduce aspects such as anxiety before monitoring behaviors (such as the use of the oximeter, whose results can be affected by anxiety-related alterations), is emphasized. Therefore, from the field of health psychology, the use of psychoeducational strategies is proposed (Belomé & Ondere, 2017) focused on explaining and clarifying doubts about the management of long COVID symptomatology to reduce possible anxious reactions or psychosocial problems such as catastrophic conceptions and hopelessness when faced with the physical or psychological condition that the person with long COVID is undergoing. The benefit of this type of strategies has been highlighted by Seidel et al. (2020), who, through audiovisual materials, brochures, and online campaigns, propose psychoeducation as a viable way to keep the population updated on relevant information about wellness care in times of the COVID-19 pandemic.

Considering the need to preserve social distancing, distance modalities of psychoeducational interventions were implemented (Seidel et al., 2020; Smith, Harman, & Brenner, 2020). This type of strategies were oriented to emotional management, including learning to cope adequately with negative emotions. This was considered an appropriate strategy to provide information for the well-being of individuals, as well as the identification of people in vulnerable situations (Lambregtse-van den Berg & Quinlivan, 2020).

Therefore, considering the recommendations of NICE (2020a) on the importance of providing adequate information for the management of persistent COVID symptomatology, this review has relied on the literature on psychoeducation to propose the involvement of health psychologists to achieve this goal in multidisciplinary health teams.

Self-care

NICE (2020a) recommends that healthcare professionals promote and facilitate self-care behaviors in people with long COVID, emphasizing behaviors such as taking prescribed medications, adjusting and implementing regular physical activity to their lifestyle, constant self-monitoring of signs and related symptomatology such as oxygenation level, shortness of breath, fatigue, etc., and relaxation. However, the implementation of these and other behaviors often involves other behavioral processes, such as self-management, decision making, learning skills, and appropriate coping styles for the health condition, in addition to considering the particular needs of the affected population (Galindo-Vázquez et al., 2020).

Self-care involves the identification of discomfort, fatigue and body monitoring considering a set of behaviors oriented to the adequate coping of health risks (Cancio-Bello, Lorenzo & Alarcó, 2020), seeking to preserve the areas of physical and mental health, as well as personal, spiritual, and social well-being (Cancio-Bello, Barcenas, & Martín, 2020). WHO (2020) have made recommendations about strategies to promote self-care like the establishment of healthy sleep and rest habits, the promotion of adequate family interaction, strategies to adapt to their new physical capacities that, due to the disease, could have been diminished, and the development of pleasant leisure activities.

Thus, it has been observed that self-care improves personal aspects –exercise, healthy alimentation, spiritual growth–; social aspects –development of interpersonal relationships–, and work aspects (Holguín-Lezcano, Arroyave-González, Ramírez-Torres, Echeverry-Lago, & Rodríguez-Bustamante, 2020). Finally, it has also been observed that medical self-care behaviors correlate with prosocial attitude, self-control, autonomy, and problem-solving strategies (Gómez, 2017), aspects that emphasize the importance of encouraging the active participation of patients in the recovery of the disease (WHO, 2020; NICE, 2020b; Rajan et al., 2021).

Support networks

With respect to support networks, both WHO (Rajan et al., 2021) and NICE (2020a) point out to the importance of support networks as a resource for sharing the experience of the COVID-19 disease and the symptomatology of long COVID, providing a space for care and support with the aim of preventing the deterioration of the quality of life of patients by allowing them to access a proper place where they can seek, receive, and share medical and psychological care (Giebel et al., 2021). Institutionally, these types of interventions have functioned in a face-to-face workshop format, but WHO and NICE have emphasized the need to implement this type of interventions through an online intervention format in order to maintain constant monitoring and support for people with long COVID.

These indications start from the rationale that support networks have been observed to have a positive impact on health status, as well as on recovery from the disease by fostering the feeling of belonging to a group in which constant interactions represent a factor of well-being for patients and encourage the acquisition of health-related behaviors (Rondón & Reyes, 2019).

Thus, the support received from these interactions can be emotional –empathy–, instrumental –through the facilita-

Table 1
Characteristics of the included studies

Authors and Year	*Title*	*Type of study*	*Strategy categorization*
Smith et al., 2020.	Flattening the curve of distress: a public-facing webinar for psychoeducation during COVID-19.	Experimental design	Psychoeducation
Lambregtse-van den Berg & Quinlivan (2020).	Identifying pregnant women at risk of developing COVID-19 –related mental health problems– a call for enhanced psychoeducation and social support.	Theoretical	Psychoeducation
Belomé & Ondere (2017).	Aplicações da Psicoeducação no Contexto da Saúde.	Systematic review	Psychoeducation
Jaywant, Vanderlind, Boas, & Dickerman, (2021).	Behavioral interventions in acute COVID-19 recovery: A new opportunity for integrated care.	Theoretical	Psychoeducation
Seidel et al., (2020).	Communicating mental health support to college students during COVID-19: An exploration of website messaging.	Descriptive	Psychoeducation
Holguín-Lezcano et al., (2020).	El autocuidado como un componente de la salud mental del psicólogo desde una perspectiva biopsicosocial.	Qualitative	Self-care
Galindo-Vázquez et al., (2020).	Síntomas de ansiedad, depresión y conductas de autocuidado durante la pandemia de COVID-19 en la población general.	Descriptive	Self-care
Gómez (2017).	Predictores psicológicos del autocuidado en salud.	Descriptive	Self-care
Cancio-Bello, Lorenzo, & Alarcó, 2020.	Autocuidado: una aproximación teórica al concepto.	Theoretical	Self-care
Cancio-Bello, Barcenas, & Martín, 2020.	Autocuidado en las esferas de la vida cotidiana.	Qualitative	Self-care
Moore & Lucas (2021).	COVID-19 distress and worries: The role of attitudes, social support, and positive coping during social isolation.	Descriptive	Support networks
Giebel et al., (2021).	A UK survey of COVID-19 – related social support closures and their effects on older people, people with dementia, and carers.	Descriptive	Support networks
Alarcón-Mora et al., 2017.	Apoyo social y su asociación con el autocuidado de la dieta en personas con diabetes.	Descriptive	Support networks
Pérez et al., (2017).	Relación del apoyo social, las estrategias de afrontamiento y los factores clínicos y sociodemográficos en pacientes oncológicos.	Descriptive	Support networks
Rondón & Reyes (2019).	Introducción al modelo transteórico: rol del apoyo social y de variables sociodemográficas.	Theoretical	Support networks
Zhang et al., (2022).	COVID-19 pandemic: study on simple, easy, and practical relaxation techniques while wearing medical protective equipment.	Experimental design	Relaxation
Cheng et al., (2020).	COVID-19 epidemic peer support and crisis intervention via social media.	Experimental design	Relaxation
Callus et al., (2020).	Stress reduction techniques for health care providers dealing with severe coronavirus infections (SARS, MERS, and COVID-19): A rapid review.	Systematic review	Relaxation
Khosravi (2020).	Stress reduction model of COVID-19 pandemic.	Theoretical	Relaxation
Taj (2020).	How to combat COVID stress syndrome.	Theoretical	Relaxation
Zinchenko et al., (2020).	Conscious self-regulation and self-organization of life during the COVID-19 pandemic.	Descriptive	Goal setting
Colineau & Paris (2010).	Motivating reflection about health within the family: the use of goal setting and tailored feedback.	Experimental design	Goal setting
Wan et al., (2016).	Effectiveness of goal-setting telephone follow-up on health behaviors of patients with ischemic stroke: a randomized controlled trial.	Experimental design	Goal setting
Strecher et al., (1995).	Goal setting as a strategy for health behavior change.	Narrative review	Goal setting
Mann et al., 2013.	Self-regulation of health behavior: social psychological approaches to goal setting and goal striving.	Narrative review	Goal setting

tion of monitoring equipment such as the oximeter– or informative (Alarcón-Mora, Hernández-Barrera, Argüelles-Nava, & Campos-Uscanga, 2017). Finally, since the aim of both WHO and NICE is the promotion and recovery of health, it has been discussed that support networks should encourage the commitment to perform healthy behaviors since these spaces imply a place for the expression of emotions, social relationships, and the collective selection of coping strategies, which would favor the active participation of patients in decision making to improve their health (Pérez, González, Mieles, & Uribe, 2017; Moore & Lucas, 2021).

Relaxation

Relaxation strategies have been recommended by WHO (2020) for all people in general who have recovered from COVID-19, but have also been recommended specifically for those experiencing long COVID-related symptomatology by both WHO (Rajan et al., 2021) and NICE (2020b). The aim of these strategies is the improvement of breathlessness, emotional well-being, stress reduction, and energy conservation in both acute COVID and long COVID patients (Khosravi, 2020).

Since the responses to stress can vary greatly from person to person depending on their background, environment, economic position, and available support networks, it is important to consider that the prolonged presence of stress has adverse effects on both physical and mental health, especially affecting the immune system (Taj, 2020).

This is why the WHO (2020) has made recommendations for the promotion of relaxation strategies in people with persistent COVID symptoms after hospitalization, considering individual strategies such as performing non-exhausting activities and controlled breathing techniques.

In order to follow the recommendations of WHO and NICE, some of the following relaxation techniques have been found to be effective in the context of the COVID-19 pandemic such as Kegel exercises, autogenic relaxation, progressive muscle relaxation –which has been reported to have a favorable impact on improving sleep quality in COVID patients–; breathing techniques, and body-oriented guided imagery techniques; and even activities such as aerobic exercise adapted to the patient's physical capacity and listening to music (Callus et al., 2020; Cheng et al., 2020; Zhang et al., 2022).

Goal setting

Goal setting is a strategy recommended by the NICE (2020a) to focus the patient's available resources (physical, psychological, social, etc.) in an appropriate way to make him/her able to perform the self-management behaviors of the disease. The assessment of the degree of long COVID rehabilitation is achieved through the emphasis on a realistic and achievable health goal. The NICE recommendation is basically a strategy to encourage mutual agreement on the follow-up and monitoring of long COVID symptomatology for the prompt reporting of symptoms that may requires hospital referral.

The rationale for goal-setting strategies lies in explicitly encouraging behavioral changes for the adoption of healthy behaviors in a concise manner and considering the appropriate context for achieving it, as well as anticipating potential distracters and adverse events that may represent an obstacle to its achievement (Mann, de Ridder, & Fujita, 2013; Wan et al., 2016). Goal setting has been observed to contibute to better personal organization and task performance by focusing efforts on particular and clear aspects during a set period of time (Colineau & Paris, 2010; Zinchenko, Morosanova, Kondratyuk, & Fomina, 2020).

While setting a goal, such as coping with long COVID symptoms does not automatically lead to its achievement, doing so will help patients to invest more efforts to achieve it, especially when they are provided with adequate feedback on their health status. Therefore, it was considered to address this strategy at the end of this review, since to be able to set goals adequately as discussed on this review and indicated by NICE (2020a), patients require the development of appropriate skills and knowledge about the goal to achieve (Strecher et al., 1995), which in this case is the management of long COVID. It is suggested that this proper goal setting, on the scenario of long COVID can be obtained through the other four strategies discussed throughout this review and have been recommendated by WHO (Rajan et al., 2021; WHO, 2020) and NICE (2020a; 2020b).

DISCUSSION AND CONCLUSION

Although it is true that the problem of emphasizing the psychological burden over the physical burden in the management of long COVID has been warned about (Gorna et al., 2021), this is not the aim of this review, but to provide guidance on psychological strategies that worked out in coordination with the medical team, could offer additional support to the indications on the management of long COVID provided by the WHO and NICE.

It should be noted that the application of these strategies is not intended to have a direct effect on the symptomatology of long COVID, but rather to have an impact on the psychosocial well-being of these patients. The improvement of long COVID symptomatology could be mediated by these strategies by improving treatment adherence behaviors, seeking that, in this way, an improvement of symptomatology can be achieved through a multidisciplinary health team.

Health psychology provides an adequate theoretical and conceptual framework to influence healthy behaviors from a multidisciplinary work scenario (Matarazzo, 1980;

Bazán, 2003) since has demonstrated its potential to address COVID-19 cases (Arden & Chilcot, 2020; Edwards et al., 2020; Freedland et al., 2020; Hansel et al., 2020), following the management guidelines of the WHO (WHO, 2020; Rajan et al., 2021) and NICE (NICE, 2020a; 2020b), this review has focused on trying to clarify the recommendations given by these institutions for future psychological interventions programs. Psychoeducation proposes strategies that not only focus on the passive reception of information by the patient, but also on appropriate strategies for its incorporation into their behavioral repertoire (Belomé & Ondere, 2017).

One way to understand this "behavioral repertoire" is through self-care behaviors such as following a healthy diet, physical activity, taking medications, medical follow-up, and social interaction following relevant health protocols (Cancio-Bello et al., 2020; Holguín-Lezcano et al., 2020).

The promotion of support networks constitutes a basis for the continuity of self-care behaviors as they can provide a constant source of motivation and different types of support –emotional, instrumental, and informational– influencing the patient's psychosocial needs and promoting their emotional well-being (Rondón & Reyes, 2019; Giebel et al., 2021).

Different relaxation strategies were proposed, as well as the literature supporting them, as a set of appropriate strategies to strengthen immune response (Taj, 2020), in addition to the impact on other areas of health such as the sleep cycle (Callus et al., 2020).

Finally, goal setting was considered appropriate since, in the absence of conclusive evidence on the duration or severity of long COVID, setting realistic and achievable goals can provide a sense of control and security to the patient (Strecher et al., 1995), in addition to focusing effort and energy on activities in line with their health status.

Several limitations of this narrative review can be pointed out. The first is the design of the articles reviewed. The lack of studies using experimental and quasi-experimental designs is a methodological deficiency; however, in order to achieve the aim of this paper, a balance between theoretical and practical articles was sought to provide guidance on the contributions of health psychology in the management of long COVID. Another limitation, also related to the design of the studies, was that most of these studies were not designed for the treatment of COVID-19 or long COVID symptomatology. Although there is a lack of studies with experimental designs on these strategies, by basing the recommendations described in this narrative review on the WHO and NICE guidelines, it is hoped that this review provide an adequate guideline for future works.

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Conflicts of interest

The authors declare they have no conflicts of interest.

REFERENCES

Alarcón-Mora, C., Hernández-Barrera, L., Argüelles-Nava, V., & Campos-Uscanga, Y. (2017). Apoyo social y su asociación con el autocuidado de la dietaen personas con diabetes. *Lisberabit*, *23*(1), 111-121. doi: 10.24265/liberabit.2017.v23n1.08

Arden, M. A., & Chilcot, J. (2020). Health psychology and the coronavirus (COVID-19) global pandemic: A call for research. *British Journal of Health Psychology*, *25*(2), 231-232. doi: 10.1111/bjhp.12414

Ashton, J. (2020). Long COVID - What doesn't kill you may not make you stronger. *Journal of the Royal Society of Medicine*, *113*(11), 466-467. doi: 10.1177/0141076820971225

Baig, A. M. (2021). Chronic COVID syndrome: Need for an appropriate medical terminology for long-COVID and COVID long-haulers. *Journal of Medical Virology*, *93*(5), 2555-2556. doi: 10.1002/jmv.26624

Bazán, G. (2003). Contribuciones de la psicología de la salud en el ámbito hospitalario de México. *Psicología y Ciencia Social*, *5*(1), 20-26. Retrieved from https://www.redalyc.org/pdf/314/31411284003.pdf

Belomé, C., & Ondere, J. (2017). Aplicações da Psicoeducação no Contexto da Saúde. *Trends in Psychology/Temas em Psicologia*, *25*(1), 17-28. doi: 10.9788/tp2017.1-02.

Callard, F., & Perego, E. (2021). How and why patients made Long Covid. *Social Science & Medicine*, *268*, 113426. doi: 10.1016/j.socscimed.2020.113426

Callus, E., Bassola, B., Fiolo, V., Bertoldo, E. G., Pagliuca, S., & Lusignani, M. (2020). Stress Reduction Techniques for Health Care Providers Dealing With Severe Coronavirus Infections (SARS, MERS, and COVID-19): A Rapid Review. *Frontiers in Psychology*, *11*, 589698. doi: 10.3389/fpsyg.2020.589698

Cancio-Bello, C., Barcenas, J., & Martín, C. (2020). Autocuidado en las esferas de la vida cotidiana. *Alternativas Cubanas en Psicología*, *8*(24), 28-39. Retrieved from https://www.researchgate.net/profile/Jany-Barcenas-Alfonso/publication/344149522_AUTOCUIDADO_EN_LAS_ESFERAS_DE_LA_VIDA_COTIDIANA/links/5f557af292851c250b995f89/AUTOCUIDADO-EN-LAS-ESFERAS-DE-LA-VIDA-COTIDIANA.pdf

Cancio-Bello, C., Lorenzo, A., & Alarcó, G. (2020). Autocuidado: una aproximación teórica al concepto. *Informes Psicológicos*, *20*(2), 119-138. doi: 10.18566/infpsic.v20n2a9

Cheng, P., Xia, G., Pang, P., Wu, B., Jiang, W., Li, Y., … Bi, X. (2020). COVID-19 Epidemic Peer Support and Crisis Intervention Via Social Media. *Community Mental Health Journal*, *56*(5), 786-792. doi: 10.1007/s10597-020-00624-5

Colineau, N., & Paris, C. (2010). Motivating reflection about health within the family: the use of goal setting and tailored feedback. *User Modeling and User-Adapted Interaction*, *21*(4-5), 341-376. doi: 10.1007/s11257-010-9089-x

Dani, M., Dirksen, A., Taraborrelli, P., Torocastro, M., Panagopoulos, D., Sutton, R., & Lim, P. B. (2021). Autonomic dysfunction in 'long COVID': rationale, physiology and management strategies. *Clinical Medicine*, *21*(1), e63-e67. doi: 10.7861/clinmed.2020-0896

Edwards, E., Janney, C. A., Mancuso, A., Rollings, H., VanDenToorn, A., DeYoung, M., … Eastburg, M. (2020). Preparing for the Behavioral Health Impact of COVID-19 in Michigan. *Current Psychiatry Reports*, *22*(12), 88. doi: 10.1007/s11920-020-01210-y

Freedland, K. E, Dew, M. A., Sarwer, D. B., Burg, M. M., Hart, T. A., Ewing, S., … Kaufmann, P. G. (2020). Health psychology in the time of COVID-19. *Health Psychology*, *39*(12), 1021-1025. doi: 10.1037/hea0001049

Galindo-Vázquez, O., Ramírez-Orozco, M., Costas-Muñiz, R., Mendoza-Contreras, L., Calderillo-Ruíz, G., & Meneses-García, A. (2020). Síntomas de ansiedad, depresión y conductas de autocuidado durante la pandemia de COVID-19 en la población general. *Gaceta Médica de México*, *156*, 298-305. doi: 10.24875/GMM.20000266

Giebel, C., Lord, K., Cooper, C., Shenton, J., Cannon, J., Pulford, D., … Gabbay, M. (2021). A UK survey of COVID-19 related social support closures and their effects on older people, people with dementia, and carers. *International Journal of Geriatric Psychiatry*, *36*(3), 393-402. doi: 10.1002/gps.5434

Gorna, R., MacDermott, N., Rayner, C., O'Hara, M., Evans, S., Agyen, L., … Hastie, C. (2021). Long COVID guidelines need to reflect lived experience. *Lancet*, *397*(10273), 455-457. doi: 10.1016/S0140-6736(20)32705-7

Graham, E. L., Clark, J. R., Orban, Z. S., Lim, P. H., Szymanski, A. L., Taylor, C., … Koralnik, I. J. (2021). Persistent neurologic symptoms and cognitive dysfunction in non-hospitalized Covid-19 "long haulers". *Annals of Clinical and Translational Neurology*, *8*(5), 1073-1085. doi: 10.1002/acn3.51350

Gómez, A. (2017). Predictores psicológicos del autocuidado en salud. *Hacia la Promoción de la Salud*, *22*(1), 101-112. doi: 10.17151/hpsal.2017.22.1.8

Halpin, S., O'Connor, R., & Sivan, M. (2021). Long COVID and chronic COVID syndromes. *Journal of Medical Virology*, *93*(3), 1242-1243. doi: 10.1002/jmv.26587

Hansel, T. C., Saltzman, L. Y., & Bordnick, P. S. (2020). Behavioral Health and Response for COVID-19. *Disaster Medicine and Public Health Preparedness*, *14*(5), 670-676. doi: 10.1017/dmp.2020.180

Higgins, V., Sohaei, D., Diamandis, E. P., & Prassas, I. (2020). COVID-19: from an acute to chronic disease? Potential long-term health consequences. *Critical Reviews in Clinical Laboratory Sciences*, *58*(5), 297-310. doi: 10.1080/10408363.2020.1860895

Holguín-Lezcano, A., Arroyave-González, L., Ramírez-Torres, V., Echeverry-Largo, W., & Rodríguez-Bustamante, A. (2020). El autocuidado como un componente de la salud mental del psicólogo desde una perspectiva biopsicosocial. *Poiésis*, *39*, 149-167. doi: 10.21501/16920945.3760

Humphreys, H., Kilby, L., Kudiersky, N., & Copeland, R. (2021). Long COVID and the role of physical activity: a qualitative study. *BMJ Open*, 11(3), e047632. doi: 10.1136/bmjopen-2020-047632

Jaywant, A., Vanderlind, W. M., Boas, S. J., & Dickerman, A. L. (2021). Behavioral interventions in acute COVID-19 recovery: A new opportunity for integrated care. *General Hospital Psychiatry*, *69*, 113-114. doi: 10.1016/j.genhosppsych.2020.07.001

Khosravi, M. (2020). Stress reduction model of COVID-19 pandemic. *Iranian Journal of Psychiatry and Behavioral Sciences*, *14*(2), e103865. doi: 10.5812/ijpbs.103865

Ladds, E., Rushforth, A., Wieringa, S., Taylor, S., Rayner, C., Husain, L., & Greenhalgh, T. (2020). Persistent symptoms after Covid-19: qualitative study of 114 "long Covid" patients and draft quality principles for services. *BMC Health Services Research*, *20*(1), 1144. doi: 10.1186/s12913-020-06001-y

Ladds, E., & Rushforth, A., Wieringa, S., Taylor, S., Rayner, C., Husain, L., & Greenhalgh, T. (2021). Developing services for long COVID: lessons from a study of wounded healers. *Clinical Medicine*, *21*(1), 59-65. doi: 10.7861/clinmed.2020-0962

Lambregtse-van den Berg, M., & Quinlivan, J. (2020). Identifying pregnant women at risk of developing COVID-19 related mental health problems - a call for enhanced psychoeducation and social support. *Journal of Psychosomatic Obstetrics & Gynecology*, *41*(4), 249-250. doi: 10.1080/0167482X.2020.1839170

Leta, V., Rodríguez-Violante, M., Abundes, A., Rukavina, K., Teo, J. T., Falup-Pecurariu, C., … Ray Chaudhuri, K. (2021). Parkinson's Disease and Post-COVID-19 Syndrome: The Parkinson's Long-COVID Spectrum. *Movement Disorders*, *36*(6), 1287-1289. doi: 10.1002/mds.28622

Llach, C.-D., & Vieta, E. (2021). Mind long COVID: Psychiatric sequelae of SARS-CoV-2 infection. *European Neuropsychopharmacology*, *49*, 119-121. doi: 10.1016/j.euroneuro.2021.04.019

Long COVID: let patients help define long-lasting COVID symptoms (2020). *Nature*, *586*(7828), 170. doi: 10.1038/d41586-020-02796-2

Lopez-Leon, S., Wegman-Ostrosky, T., Perelman, C., Sepulveda, R., Rebolledo, P. A., Cuapio, A., & Villapol, S. (2021). More than 50 Long-term effects of COVID-19: a systematic review and meta-analysis. *medRxiv: The Preprint Server for Health Sciences*, 2021.01.27.21250617. doi: 10.1101/2021.01.27.21250617

Mahase, E. (2020). Covid-19: What do we know about "long covid"?. *BMJ*, *370*, m2815. doi: 10.1136/bmj.m2815

Mahmoudi, H., Saffari, M., Movahedi, M., Sanaeinasab, H., Rashidi-Jahan, H., Pourgholami, M., … Pakpour, A. H. (2021). A mediating role for mental health in associations between COVID-19-related self-stigma, PTSD, quality of life, and insomnia among patients recovered from COVID-19. *Brain and Behavior*, *11*(5), e02138. doi: 10.1002/brb3.2138

Mandal, S., Barnett, J., Brill, S., Brown, J., Denneny, E., Hare, S., … ARC Study Group. (2020). 'Long-COVID': a cross-sectional study of persisting symptoms, biomarker and imaging abnormalities following hospitalisation for COVID-19. *Thorax*, *76*(4), 396-398. doi: 10.1136/thoraxjnl-2020-215818

Mann, T., de Ridder, D., & Fujita, K. (2013). Self-regulation of health behavior: Social psychological approaches to goal setting and goal striving. *Health Psychology*. *32*(5), 487-498. doi: 10.1037/a0028533

Matarazzo, J. (1980). Behavioral health and behavioral medicine: Frontiers for a new health psychology. *American Psychologist*, *35*(9), 807-817. doi: 10.1037//0003-066x.35.9.807

Meeting the Challenge of Long COVID. (2020). *Nature Medicine*, *26*(12), 1803. doi: 10.1038/s41591-020-01177-6

Mendelson, M., Nel, J., Blumberg, L., Madhi, S. A., Dryden, M., Stevens, W., & Venter, F. (2020). Long-COVID: An evolving problem with an extensive impact. *South African Medical Journal*, *111*(1), 10-12. doi: 10.7196/SAMJ.2020.v111i11.15433

Miskowiak, K., Johnsen, S., Sattler, S., Nielsen, S., Kunalan, K., Rungby, J., … Porsberg, C. (2021). Cognitive impairments four months after COVID-19 hospital discharge: Pattern, severity and association with illness variables. *European Neuropsychopharmacology*, *46*, 39-48. doi: 10.1016/j.euroneuro.2021.03.019

Moore, K. A., & Lucas, J. J. (2021). COVID-19distress and worries: The role of attitudes, social support, and positive coping during social isolation. *Psychology and Psychotherapy*, *94*(2), 365-370. doi: 10.1111/papt.12308

Nabavi, N. (2020). Long COVID: How to define it and how to manage it. *BMJ*, *370*, m3489. doi: 10.1136/bmj.m3489

National Institute for Health and Care Excellence [NICE]. (2020a). *COVID-19 rapid guideline: managing the long-term effects of COVID-19, 2020*. Retrieved from https://www.nice.org.uk/guidance/ng188/resources/COVID19-rapid-guideline-managing-the-longterm-effects-of-COVID19-pdf-66142028400325

National Institute for Health and Care Excellence [NICE]. (2020b). *COVID-19 rapid guideline: managing the long-term effects of COVID-19 (NG188): Evidence review 5: interventions*. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK567264

Oblitas, L. (2008a). Psicología de la salud: Una ciencia del bienestar y la felicidad. *AV. Psicología*, *16*(1), 9-38. Retrieved from http://www.unife.edu.pe/publicaciones/revistas/psicologia/2008/psicologiasalud.pdf.

Oblitas, L. (2008b). El estado del arte de la psicología de la salud. *Revista de Psicología*, *26*(2), 219-254. Retrieved from http://pepsic.bvsalud.org/pdf/rp/v26n2/v26n2a02.pdf.

Office for National Statistics. (2021). *Updated estimates of the prevalence of long COVID symptoms*. Retrieved from https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/adhocs/12788updatedestimatesoftheprevalenceoflongCOVIDsymptoms

Pérez, P., González, A., Mieles, I., & Uribe, A. (2017). Relación del apoyo social, las estrategias de afrontamiento y los factores clínicos y sociodemográficos en pacientes oncológicos. *Pensamiento Psicológico*, *15*(2), 41-54. doi: 10.11144/Javerianacali.PPSI15-2.rase

Rajan, S., Khunti, K., Alwan, N., Steves, C., Greenhalgh, T., MacDermott, N., … McKee, M. (2021). *In the wake of the pandemic: preparing for long COVID*. World Health Organization. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/339629/Policy-brief-39-1997-8073-eng.pdf

Raveendran, A. V. (2021a). Long COVID-19: Challenges in the diagnosis and proposed diagnostic criteria. *Diabetes & Metabolic Syndrome*, *15*(1), 145-146. doi: 10.1016/j.dsx.2020.12.025

Raveendran, A. V., Jayadevan, R., & Sashidharan, S. (2021b). Long COVID: An overview. *Diabetes & Metabolic Syndrome*, *15*(3), 869-875. doi: 10.1016/j.dsx.2021.04.007

Rondón, J., & Reyes, B. (2019). Introducción al modelo transteórico: rol del apoyo social y de variables sociodemográficas. *Revista Electrónica de Psicología Iztacala*, *22*(3), 2601-2633. Retrieved from http://www.revistas.unam.mx/index.php/repi/article/view/70932/62641

Seidel, E. J., Mohlman, J., Basch, C. H., Fera, J., Cosgrove, A., & Ethan, D. (2020). Communicating Mental Health Support to College Students During COVID-19: An Exploration of Website Messaging. *Journal of Community Health*, *45*(6), 1259-1262. doi: 10.1007/s10900-020-00905-w

Sher, L. (2020a). The impact of the COVID-19 pandemic on suicide rates. *QJM: An International Journal of Medicine*, *113*(10), 707-712. doi: 10.1093/qjmed/hcaa202

Sher, L. (2020b). Are COVID-19 survivors at increased risk for suicide? *Acta Neuropsychiatrica*, *32*(5), 270. doi: 10.1017/neu.2020.21

Sher, L. (2021). Post-COVID syndrome and suicide risk. *QJM: An International Journal of Medicine*, *114*(2), 95-98. doi: 10.1093/qjmed/hcab007

Silva, B., Siqueira, S., de Assis Soares, W. R., de Souza Rangel, F., Santos, N. O., dos Santos Freitas, A., ... Barh, D. (2021). Long-COVID and Post-COVID Health Complications: An Up-to-Date Review on Clinical Conditions and Their Possible Molecular Mechanisms. *Viruses*, *13*(4), 700. doi: 10.3390/v13040700

Simpson, F., Chew-Graham, C., & Lokugamage, A. (2021). Long COVID in children: the perspectives of parents and children need to be heard. *British Journal of General Practice*, *71*(706), 216. doi: 10.3399/bjgp21X715769

Sivan, M., & Taylor, S. (2020). NICE guideline on long covid. *BMJ*, *371*, m4938. doi: 10.1136/bmj.m4938

Smith, G., Harman, S., & Brenner, K. (2020). Flattening the curve of distress: A public-facing webinar for psychoeducation during COVID-19. *Patient Experience Journal*, *7*(2), 151-155. doi: 10.35680/2372-0247.1497

Stefano, G. (2021). Historical Insight into Infections and Disorders Associated with Neurological and Psychiatric Sequelae Similar to Long COVID. *Medical Science Monitor*, *27*, e931447. doi: 10.12659/MSM.931447

Strecher, V. J., Seijts, G. H., Kok, G. J., Latham, G. P., Glasgow, R., DeVellis, B., … Bulger, D. W. (1995). Goal setting as a strategy for health behavior change. *Health Education Quarterly*, *22*(2), 190-200. doi: 10.1177/109019819502200207

Sudre, C. H., Murray, B., Varsavsky, T., Graham, M. S., Penfold, R. S., Bowyer, R. C., … Steves, C. J. (2021). Attributes and predictors of long COVID. *Nature Medicine*, *27*(4), 626-631. doi: 10.1038/s41591-021-01292-y

Sykes, D. L., Holdsworth, L., Jawad, N., Gunasekera, P., Morice, A. H., & Crooks, M. G. (2021). Post-COVID-19 Symptom Burden: What is Long-COVID and How Should We Manage It? *Lung*, *199*(2), 113-119. doi: 10.1007/s00408-021-00423-z

Taboada, M., Moreno, E., Cariñena, A., Rey, T., Pita-Romero, R., Leal, S., … Seoane-Pillado, T. (2021). Quality of life, functional status, and persistent symptoms after intensive care of COVID-19 patients. *British Journal of Anaesthesia*, *126*(3), e110-e113. doi: 10.1016/j.bja.2020.12.007

Taj, R. (2020). How to combat COVID stress syndrome. *Annals of Pakistan Institute of Medical Sciences*, *16*(4), 158-160. Retrieved from https://www.apims.net/index.php/apims/article/download/424/286/1226

The Lancet Neurology (2021). Long COVID: understanding the neurological effects. The Lancet. Neurology, 20(4), 247. https://doi.org/10.1016/S1474-4422(21)00059-4

Venkatesan, P. (2021). NICE guideline on long COVID. *The Lancet. Respiratory Medicine*, *9*(2), 129. doi: 10.1016/S2213-2600(21)00031-X

Wan, L.-H., Zhang, X.-P., Mo, M.-M., Xiong, X.-N., Ou, C.-L., You, L.-M., … Zhang, M. (2016). Effectiveness of Goal-Setting Telephone Follow-Up on Health Behaviors of Patients with Ischemic Stroke: A Randomized Controlled Trial. *Journal of Stroke and Cerebrovascular Diseases*, *25*(9), 2259-2270. doi: 10.1016/j.jstrokecerebrovasdis.2016.05.010

World Health Organization [WHO]. (2020). *Support for rehabilitation: self-management after COVID-19 related illness, 2020*. Retrieved from https://apps.who.int/iris/handle/10665/344472

Yelin, D., Margalit, I., Yahav, D., Runold, M., & Bruchfeld, J. (2021). Long COVID-19-it's not over until? *Clinical Microbiology and Infection*, *27*(4), 506-508. doi: 10.1016/j.cmi.2020.12.001

Zhang, H., Li, A., Zhu, B., Niu, Y., Ruan, Z., Liu, L., ... Wang, H. (2022). COVID-19 pandemic: Study on simple, easy, and practical relaxation techniques while wearing medical protective equipment. *Psychological Medicine*, *52*(7), 1386-1392. doi: 10.1017/S0033291720003220

Zinchenko, Y., Morosanova, V., Kondratyuk, N., & Fomina, T. (2020). Conscious self-regulation and self-organization of life during the COVID-19 pandemic. *Psychology in Russia*, *13*(4), 168-182. doi: 10.11621/pir.2020.0411