

REVISTA IBERO-AMERICANA DE SAÚDE E ENVELHECIMENTO REVISTA IBERO-AMERICANA DE SALUD Y ENVEJECIMIENTO

#### **SEQUELAE'S OF COVID-19:**

IMPORTANCE OF MULTIDISCIPLINARY CONSULTATION
IN PRIMARY HEALTH CARE

#### **SEQUELAS DA COVID-19:**

IMPORTÂNCIA DA CONSULTA MULTIDISCIPLINAR NOS CUIDADOS DE SAÚDE PRIMÁRIOS

#### **SECUELAS DEL COVID-19:**

IMPORTANCIA DE LA CONSULTA MULTIDISCIPLINAR EN LA ATENCIÓN PRIMARIA DE SALUD

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## **ABSTRACT**

**Objective:** To identify the predominant sequelae of the COVID-19 disease through the implementation of a multidisciplinary consultation, in Primary Health Care, to monitor users who have sequelae of the COVID-19 disease.

Methods: This is a descriptive study, based on the methodology of health planning. Of the 145 users residing in the geographic area covered by the Community Care Unit, who were infected with the SARS-CoV-2 virus, in the months of January, February and March 2021, a convenience sample of 49 users was selected. These were interviewed by telephone, supported by a checklist validated by health professionals who are experts in this area. After collecting the information, a descriptive analysis was performed using SPSS (Statistical Package for the Social Sciences) version 27 for Windows.

Results: From the sample of 49 individuals, 56.3% are male and 43.8% are female. The average age is 45.2 years-old, ranging from a minimum of 19 to a maximum of 75 years-old. As for professional status, 77.1% are employed, 10.4% are unemployed, 8.3% are retired and 4.2% are students. Regarding the presence of sequelae from the disease COVID-19, of these 49 users, 28 reported having had sequelae, the most mentioned sequel being tiredness (47.9%) and the least frequent being headaches, anxiety/depression, among others, at a value percentage of 2.1%. Of the 28 individuals who reported having had sequelae, 53.6% mentioned that they had altered their quality of life.

Conclusions: Given that about half of the individuals who were infected mentioned having had sequelae from the disease, and of these, about half also reported compromising their quality of life, it seems essential to implement a multidisciplinary consultation, in Primary Health Care, that allows you to act on the sequels effectively, contributing to the recovery of their health and quality of life.

Keywords: Coronavirus Infections; COVID-19; Public Health Nursing.

## **RESUMO**

**Objetivo:** Identificar quais as sequelas da doença COVID-19 predominantes, para implementação de uma consulta multidisciplinar, nos Cuidados de Saúde Primários, para acompanhamento dos utentes que apresentam sequelas da doença COVID-19.

**Métodos:** Trata-se de um estudo descritivo, assente na metodologia do planeamento em saúde. Dos 145 utentes residentes na área geográfica de abrangência da Unidade de Cuidados na Comunidade, que estiveram infetados pelo vírus SARS-CoV-2, nos meses de

janeiro, fevereiro e março de 2021, foi selecionada uma amostra por conveniência de 49 utentes. A estes, foi feita telefonicamente uma entrevista, suportada numa *checklist* validada por profissionais de saúde, *experts* nesta temática. Após a recolha da informação, foi feita a análise descritiva, com recurso ao SPSS (*Statistical Package for the Social Sciences*) versão 27 para Windows.

Resultados: Da amostra de 49 indivíduos, 56,3% são do género masculino e 43,8% do género feminino. A média de idades é de 45,2 anos, variando entre um mínimo de 19 e um máximo de 75 anos. Quanto à situação profissional, 77,1% encontram-se empregados, 10,4% desempregados, 8,3% estão reformados e 4,2% são estudantes. Relativamente à presença de sequelas da doença COVID-19, destes 49 utentes, 28 referiram ter tido sequelas, sendo a sequela mais referida o cansaço (47,9%) e as menos frequentes as cefaleias, ansiedade/ depressão, entre outras, num valor percentual de 2,1%. Dos 28 indivíduos que referiram ter tido sequelas, 53,6% mencionaram que as mesmas alteraram a sua qualidade de vida.

**Conclusões:** Atendendo a que cerca de metade dos indivíduos que estiveram infetados mencionaram ter tido sequelas da doença, e destes, também cerca de metade referiram comprometimento da sua qualidade de vida, parece essencial a implementação de uma consulta multidisciplinar, nos Cuidados de Saúde Primários, que permita atuar sobre as sequelas de forma eficaz, contribuindo para a recuperação da sua saúde e qualidade de vida.

Palavras-chave: COVID-19; Enfermagem em Saúde Pública; Infeções por Coronavírus.

### **RESUMEN**

**Objetivos:** Identificar las secuelas predominantes de la enfermedad COVID-19, para la implementación de una consulta multidisciplinaria, en la Atención Primaria de Salud, para el seguimiento de los usuarios que presentan secuelas de la enfermedad COVID-19.

**Métodos:** Estudio descriptivo, basado en la metodología de la planificación en salud. De los 145 usuarios de una Unidad de Atención Comunitaria, que han contraído la infección por virus SARS-CoV-2, en los meses de enero, febrero y marzo de 2021, se seleccionó una muestra por conveniencia de 49 usuarios, qui fueron entrevistados telefónicamente, apoyados en una *checklist* validada por profesionales de la salud expertos en la materia. Después de recolectar los datos, se realizó un análisis descriptivo utilizando SPSS (*Statistical Package for the Social Sciences*) versión 27 para Windows.

**Resultados:** De la muestra de 49 individuos, encontramos 56,3% hombres y 43,8% mujeres. La edad media es de 45,2 años, variando desde un mínimo de 19 hasta un máximo de 75 años. En cuanto a la situación profesional, el 77,1% de los encuestados están empleados, el 10,4% están desempleados, el 8,3% están jubilados y el 4,2% son estudiantes. Con respecto

a la presencia de secuelas de la enfermedad COVID-19, de estos 49 usuarios, 28 reportaron haber tenido secuelas, siendo la más referida fatiga (47,9%) y la menos frecuente cefalea, ansiedad/depresión, entre otras, en un valor porcentual del 2,1%. De los 28 individuos que refirieron haber tenido secuelas, 53,6% mencionaron haber alterado su calidad de vida.

**Conclusión:** El elevado número de individuos con secuelas de la enfermedad COVID-19 destaca la necesidad de intervención del equipo de salud en favor de un adecuado control de la situación diagnóstica y mejora de la calidad de vida de estos usuarios.

Descriptores: COVID-19; Enfermería en Salud Pública; Infecciones por Coronavírus.

## INTRODUCTION

In December 2019, the World Health Organization (WHO) recorded the first official case of pneumonia, with an unknown cause until then, in the city of Wuhan, an alarming situation that provoked a high interest in health authorities. International concern about the growing evolution of cases of this type of pneumonia led to the declaration of a state of international public health emergency in January 2020. On March 11, 2020, the WHO assumes that it is a severe acute respiratory syndrome (SARS) caused by a new type of coronavirus (from the *Coronaviridae* family: SARS-CoV-2). COVID-19 (Corona Virus Disease, 2019) is then declared a pandemic<sup>(1)</sup>.

Until then, COVID-19 had reached around 100 countries, with more than 100,000 confirmed cases of the disease, with urgent specific measures for identification, prevention and control to face the situation<sup>(2)</sup>.

In view of the pandemic situation, the Directorate-General for Health (DGS) issues rule no. 020/2020 of 11/09/2020, where the clinical, epidemiological, imaging and laboratory criteria are referred to in order to confirm a positive case for COVID-19<sup>(3)</sup>.

At the same time, the Pan American Health Organization/World Health Organization (PAHO/WHO), after investigating and documenting the importance of surveillance of users who were infected, outlined recommendations to all its Member States, so that they could promote the follow-up and assistance to all users who have sequelae of the COVID-19 disease<sup>(4)</sup>.

Since COVID-19 is a new disease, PAHO/WHO advised that countries, in their health systems, should anticipate the rehabilitation needs of recovering users, in order to improve their lives after the disease<sup>(4)</sup>.

The development of multidisciplinary consultations for the assistance of users who have experienced the disease COVID-19 becomes relevant, given that in some cases the sequelae remain beyond 3 or 4 weeks from the onset of the acute symptoms of the disease<sup>(5)</sup>.

Theoretical contextualization was elaborated using scientific evidence, mainly from the World Health Organization (WHO), General Directorate of Health (DGS) and the Pan American Health Organization/World Health Organization (PAHO/WHO). In all sources, there is a need for a comprehensive and multidisciplinary intervention in terms of knowledge of this disease, as well as its consequences/sequelae.

In this study, the predominant sequelae in patients with COVID-19 were identified and, based on the methodology of health planning, the need to implement a multidisciplinary consultation in Primary Health Care was determined, in a health unit in the Algarve region, in the south of Portugal, to monitor users who have sequelae from the COVID-19 disease.

#### THEORETICAL CONTEXT

The name COVID-19 appears by the World Health Organization, through the connection of the words "Corona", "Virus" and "Disease", adding later the indication of the year in which the first case was diagnosed (2019). The COVID-19 disease is highly transmissible and causes mild to severe symptoms, which can evolve and thus lead to an increase in hospital admissions and, consequently, an increase in deaths<sup>(6)</sup>.

The laboratory diagnosis of the SARS-CoV-2 coronavirus is carried out by collecting a biological sample, which must be carried out by professionals duly qualified to carry out the technique and where there are conditions for the conservation and packaging of the samples. In addition, professionals must strictly comply with all recommendations for the use of personal protective equipment<sup>(2)</sup>.

The clinical picture of SARS-CoV-2 infection is very broad, ranging from a simple cold to progressing to a diagnosis of severe pneumonia. Initially, signs and symptoms are characterized by a mild flu-like illness, however, people with COVID-19 usually develop a gradual worsening of these symptoms, including respiratory problems and persistent fever, on average 5 to 6 days after infection (which is called the incubation period)<sup>(6)</sup>.

According to scientific evidence, it is known that COVID-19 can develop **mild symptoms** (fever, cough, dyspnoea, myalgia or arthralgia, odynophagia, fatigue and headache); **mo**-

derate symptoms (such as pneumonia) and severe symptoms that result in a reserved clinical picture with several complications (such as severe pneumonia, respiratory failure, heart failure, acute renal failure, among others)<sup>(6)</sup>.

More than two years after the start of this pandemic, new doubts arise regarding the possible consequences of this disease. In this way, according to PAHO/WHO indications, countries, in their health systems, should anticipate the rehabilitation needs of recovering users, in order to improve their lives after the disease<sup>(6)</sup>.

In view of the above, it is important to prioritize research on the sequelae of the COVID-19 disease, in order to improve the quality of life of this population, as well as to find strategies for preventing and controlling the pandemic<sup>(6)</sup>.

The sequelae of COVID-19 are classified into two groups: **(1) sub-acute or continuous symptomatic COVID-19** (includes persistence of symptoms for 4 to 12 weeks after the acute episode) and **(2) chronic or post-COVID-19 syndrome** (includes persistence of symptoms beyond 12 weeks after the acute episode)<sup>(5)</sup>.

When we look in detail at the consequences of COVID-19, we are able to describe its incidence according to the following systems<sup>(5)</sup>:

- a. <u>Respiratory system:</u> the most common sequelae are: dyspnea, fatigue, decreased exercise capacity and hypoxia;
- b. <u>Cardiac system:</u> sequelae may include palpitations, chest pain, but there are also users who may have arrhythmias, tachycardia;
- c. <u>Neuropsychiatric system:</u> sequelae that may manifest are: fatigue, myalgia, headache, brain fog, anxiety, depression, sleep disorders;
- d. <u>Renal system:</u> the predominant sequelae are manifested in users who have a personal history of chronic kidney disease and chronic kidney failure. Thus, it is imperative to monitor users with renal failure who have already been infected by COVID-19;
- e. <u>Endocrine system:</u> sequelae include worsening of existing diabetes *Mellitus*, possible worsening of thyroiditis and bone demineralization;
- f. <u>Gastrointestinal and hepatobiliary system:</u> the predominant sequel is diarrhea since COVID-19 enhances the alteration of the intestinal microbiome;
- g. <u>Dermatological system:</u> hair loss is the predominant sequel.

## MATERIAL AND METHODS

Based on the health planning methodology and, in order to fulfill the proposed objective, a descriptive study was carried out in July and August 2021. Of the 145 users residing in the geographic area covered by the Community Care Unit (ARS of Algarve) and who were infected by the SARS-CoV-2 virus, in the months of January, February and March 2021, a convenience sample of 49 users was selected, namely:

- In January (28 respondents);
- In February (11 respondents);
- In March (10 respondents).

As previously mentioned, the sequelae of COVID-19 may appear 4 to 12 weeks after the acute episode, or beyond 12 weeks, thus, the date of diagnosis was considered as the first inclusion criterion. The selected users would have had the disease for a maximum of 5 months and for a minimum of 1 month, that is, they had to have been infected in the months of January, February and March 2021.

Data collection was obtained through a telephone interview, using a checklist, which was elaborated and validated by health professionals who are experts in this area. This was prepared taking into account several factors inherent to the COVID-19 disease and the characterization of the user: gender, age, personal history, reason for carrying out the test, symptoms of the disease, need or not for hospitalization, sequelae of the disease and level of their severity (verifying whether they compromise working life or alter quality of life). This interview was carried out by telephone, taking into account the pandemic situation that the country was experiencing, in a UCC office, guaranteeing the confidentiality and secrecy of the information collected.

Statistical analysis involved measures of descriptive statistics and was performed using SPSS (Statistical Package for Social Sciences) version 27 for Windows.

The selected users were informed and clarified about the anonymous, confidential and voluntary character of the collection of information and its purpose. The study was approved by the Ethics Committee of the ARS Algarve (Administração Regional de Saúde do Algarve, IP).

## **RESULTS**

The sample consisted of 49 users, 43.8% female and 56.3% male, with an average age of 45.2 years-old, ranging from a minimum of 19 to a maximum of 75 years-old. With regard to professional status, 77.1% of respondents are employed, 10.4% are unemployed, 8.3% are retired and 4.2% are students.

With regard to personal history, it is evident that 10.4% of respondents reported heart disease, 8.3% respiratory disease, 6.3% reported having another type of history, 4.2% have diabetes and with the same percentage, 2.1%, there are users with neoplastic disease or autoimmune disease. Thus, we can conclude that around 33.4% of users reported having one of the personal backgrounds presented (Graph 17).

Regarding the reason for carrying out the test for SARS-CoV-2, the predominant answer was contact with a positive case. In January and February, the presence of symptoms was the second most reported reason (Table 1<sup>a</sup>).

When analyzing the symptoms reported by users, in view of the disease COVID-19 (non-exclusive multiple choice answer), it should be noted that 43.8% reported tiredness, 27.1% fever, 27.1% cough, 25% loss of taste, with the same percentage of 22.9% referring loss of smell and other symptoms, namely headache, sore throat and 4% diarrhea (Graph  $2^{3}$ ).

Of the 49 users with symptoms, only 2 required hospitalization in the area of residence, however, 28 reported still feeling symptoms in July and August, that is, 28 of these 49 users reported having sequelae of the disease, the sequel being the most mentioned tiredness and the least mentioned were headaches, depression/anxiety and mental confusion (Graph 3<sup>a</sup>).

Of these 28 users who had sequelae of the COVID-19 disease, 13 sought support from a health professional, 2 reported being unable to work and 15 reported that they suffered changes in their quality of life after infection with the SARS-CoV-2 virus.

# **DISCUSSION OF RESULTS**

The COVID-19 pandemic has shown all countries the need to plan and to define strategies for combating large-scale communicable diseases. In this way, countries could define their intervention plans based on the following four phases: in the first phase, it is necessary to create contexts for the reception of patients in order to mitigate the demand for hospitals by non-COVID-19 patients, devising alternative strategies to reduce the capacity of hospitalized patients, preparing them to receive COVID-19 patients. In the next phase, after the decrease in the number of infected people and patients hospitalized by COVID-19, it would be essential to adopt measures in order to protect the population weakened by COVID-19 and ensure that the general population, COVID and non-COVID, continue to have assistance. In the third phase, it is necessary to encourage vaccination, strengthening vaccine distribution and administration teams, promoting mass vaccination in vaccination centers with a view to new life after the COVID-19 pandemic. In the final phase, opportunities must be sought to improve the future of populations in general, but there must be a plan to respond to those who may present and need post-COVID-19 care<sup>(1)</sup>.

In Portugal, government entities somehow managed to meet this plan. Initially, it was difficult to find alternative circuits to hospitals and to implement measures in order to reduce the non-COVID-19 hospitalization capacity. However, there were 6 waves of the pandemic in Portugal, with the worst predicted scenario erupting in January 2021, with a high number of deaths and infections from the COVID-19 disease. In the vaccination phase, in Portugal, the effort and resilience of all stakeholders was very important so that, during the month of September 2021, coverage of 85% of the vaccinated Portuguese population was achieved<sup>(7)</sup>. Regarding the final phase of the flat, Portugal walked more slowly.

The follow-up of users who have sequelae of the COVID-19 disease is not generalized. There are some private clinics that have this follow-up consultation carried out by a multidisciplinary team, however access is not free. Some public hospitals monitor the user after hospital discharge, but this follow-up is only for users who have been hospitalized. Therefore, it would be important for government entities, in the area of health, to define a multidisciplinary response in Primary Health Care, for patients with sequelae of the COVID-19 disease, still in recovery, in need of follow-up, in order to avoid complications of the disease and recover more quickly from the disease.

The infection by SARS-CoV-2, since January 2020, has spread all over the world, causing a huge impact both in terms of health and socially and economically. Thus, it is important to understand to what extent the appearance of complications/sequelae in different systems can affect these people's lives.

From the available scientific evidence, it was found that most studies on the sequelae of COVID-19 were published between 2020 and 2021. Of the four studies consulted, one was carried out in Portugal, two in Brazil and the last one in the United States of America<sup>(1,2,5,6)</sup>.

The authors are unanimous with regard to the need to deepen knowledge about the complications and long-term sequelae of the COVID-19 disease, which is essential for the health care provided to these users to excel in quality and reach a high number of people affected by the pandemic.

The implementation of rehabilitation projects suited to the different sequelae/complications is necessary, according to the needs of users. In this way, it is recommended that there be follow-up and assistance programs for all those who have recovered from the COVID-19 disease. Regarding this study, it was found that the prevalence of sequelae was high in this sample, which presupposes the need for face-to-face monitoring, carried out by a multidisciplinary team<sup>(4)</sup>.

The health professional has a fundamental role in recognizing the complications/sequelae of COVID-19, therefore, it reinforces the importance of monitoring users with COVID-19, after hospital discharge and even after the days of healing at home<sup>(5)</sup>.

In an investigation with a sample of 143 individuals, 2 months after hospital discharge, 53.1% had fatigue and 43.4% dyspnea. These data corroborate the results presented here, as of the 28 respondents who reported having sequelae from the disease, 47.9% reported tiredness and 6.3% difficulty breathing<sup>(6)</sup>.

In another study<sup>(8)</sup> affections of the pulmonary system were also highlighted, referring to symptoms such as dyspnea, fatigue and, in more serious situations, pulmonary fibrosis. Alterations of the cardiovascular system were also mentioned, and olfactory and gustatory dysfunctions were very evident. The most referred musculoskeletal sequelae are weakness and loss of muscle strength. Psychological and emotional issues were also reported in the study, due to social isolation, fear of the risk of death, leading to situations of anxiety, depression and stress.

Other authors<sup>(9)</sup> also refer that, as a result of their investigation, the presence of at least one persistent symptom after the infection was found, the most mentioned being fatigue, hyposmia, ageusia and headache. Thus, the authors concluded that COVID-19 can leave several consequences, whether in the short or long term, interfering with the quality of life of these people.

Also in the results we found, the impossibility of working and the repercussions on their quality of life were mentioned.

The consequences of Covid-19 can influence the health of the worker, since the long-term manifestations are numerous, the symptoms can be neurological, respiratory and mental health. The consequences of Covid-19 have a negative impact on the quality of life of people who have been infected, compromising their daily activities and productivity. In this way, it is suggested that companies or employers guarantee workers a gradual return to their work activities, in order to mitigate the impact on their health<sup>(10)</sup>.

The follow-up of individuals recovered from the COVID-19 disease should be as broad as possible, in order to cover as much information as possible about personal history, the symptoms experienced, the acute phase of the disease and recovery. This study also demonstrates the need for a guide (checklist) for the individual assessment of the patient, with a set of items that allow a more complete characterization of the situation<sup>(1)</sup>.

The analysis of the main ideas of the consulted articles<sup>(1,2,5,6)</sup> corroborates the importance of identifying the predominant sequelae in individuals who have faced the COVID-19 disease, and thus accompanying them through adapted rehabilitation programs, from the post-acute phase to the long term, according to the needs of each person. In addition, it appears that it is important and necessary to look at "the post-COVID-19", addressing its epidemiology, the different systems affected by the sequelae of COVID-19 and finally, highlighting the importance of monitoring these users in consultations specific and multidisciplinary.

# CONCLUSION

The present study took place in a CCU of the ARS in the Algarve and aimed to identify the predominant sequelae of the COVID-19 disease.

With regard to knowledge about the prevalence of the sequelae of the disease COVID-19, it seems clear that there is a need to work more in this area and to promote the training of communities and health professionals, in order to improve the quality and adequacy of care

It appears that tiredness and difficulty breathing are the predominant sequelae in individuals, a fact corroborated by studies already carried out.

The presentation and discussion of these results with the multidisciplinary teams was crucial, thus contributing to the adoption of strategies that aim to contribute to improving the quality of life of users, promoting the reduction of sequelae and their effects, through rehabilitation programs, thus avoiding complications that can progress to more serious conditions, compromising their personal, family and professional life.

This diagnosis of the health situation made it possible to perceive the need to implement community intervention projects in this area, based on the stages of health planning, having been decisive for the creation and implementation of a multidisciplinary consultation for the follow-up of patients, in the post-COVID-19 period, in Primary Health Care.

#### Authors' contributions

AS: Study coordination, study design, data collection, storage and analysis, review and discussion of results.

LG: Study design, data analysis, review and discussion of results.

AC: Study design, data analysis, review and discussion of results.

IS: Study design, data analysis, review and discussion of results.

FM: Study design, data analysis, review and discussion of results.

EC: Study design, data analysis, review and discussion of results.

All authors read and agreed with the published version of the manuscript.

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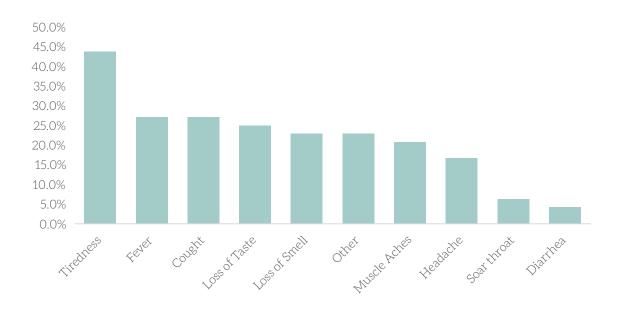
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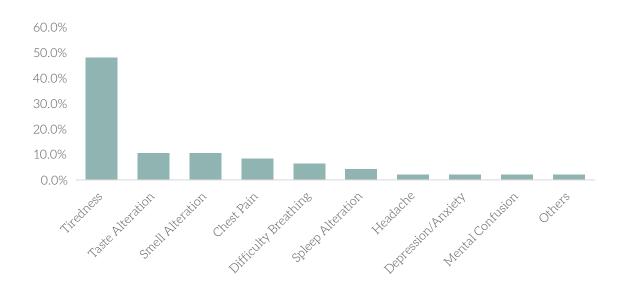


Graph 1 − Personal background. <sup>K</sup>

	January		February		March	
	N	%	N	%	N	%
Contact	20	71.40	6	54.50	10	100.00
Symptoms	6	21.40	4	36.40	_	_
Other	2	7.20	1	9.10	_	-
Total	28	100.00	11	100.00	10	100.00



Graph 2 - Symptomatology of respondents. \(^{\scrt{c}}\)



Graph 3 - Sequelae mentioned by respondents. \(^{\scrt{c}}\)