



## **Assessment of Covid-19 cases in patients with comorbidities during the pandemic, in the period 2020-2021, from the territorial perspective of the municipalities of Rio Branco and Cruzeiro do Sul, Acre**

*Evaluation of Covid-19 cases in patients with comorbidities during the pandemic, in the period 2020-2021, from the territorial perspective of the municipalities of Rio Branco and Cruzeiro do Sul, Acre*

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### **SUMMARY**

COVID-19 infected millions of people worldwide by 2021, leaving profound scars on their health and daily lives. After the initial period of infection, many patients experienced persistent symptoms that affected vital organs such as the heart, lungs, and muscles, in addition to compromising neurological and psychological areas, resulting in pain, fatigue, and significant limitations. This study aimed to investigate the consequences of COVID-19 on infected individuals, analyzing not only their physical health but also their comfort and quality of daily life. This intervention project is based on active methodologies, particularly problematization and the Maguerez Arc, developed from the observation of structured reality. The research was conducted through two complementary approaches: a literature review based on sources such as Google Scholar and the Brazilian Digital Library of Theses and Dissertations; and the analysis of secondary data from the Cruzeiro do Sul Municipal Health Department and the Rio Branco Municipal Health Department, collected during the 2020-2021 pandemic period at a Basic Health Unit. The results show that respiratory diseases were the most common, as the lungs are the main target of the virus, causing disability, fatigue, and, in severe cases, pulmonary fibrosis. Given this scenario, the importance of physical therapists in the rehabilitation process stands out, as they are essential for reintegrating patients into social life and improving their quality of life.

**Keywords:** Covid-19. Infection. Rio Branco. Cruzeiro do Sul.

### **ABSTRACT**

COVID-19 infected millions of people worldwide by 2021, leaving profound scars on their health and daily lives. After the initial period of infection, many patients experienced persistent symptoms that affected vital organs such as the heart, lungs, and muscles, in addition to compromising neurological and psychological areas, resulting in pain, fatigue, and significant limitations. This study aimed to investigate the consequences of COVID-19 on infected individuals, analyzing not only their physical health but also their comfort and quality of daily life. This intervention project is based on active methodologies, particularly problematization and the Maguerez Arc, developed from the observation of structured reality. The research was conducted through two complementary approaches: a literature review based on sources such as Google Scholar and the Brazilian Digital Library of Theses and Dissertations; and the analysis of secondary data from the Cruzeiro do Sul Municipal Health Department and the Rio Branco Municipal Health Department, collected during the 2020-2021 pandemic period at a

Basic Health Unit. The results show that respiratory diseases were the most common, as the lungs are the main target of the virus, causing disability, fatigue, and, in severe cases, pulmonary fibrosis. Given this scenario, the importance of physical therapists in the rehabilitation process stands out, as they are essential for reintegrating patients into social life and improving their quality of life.

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## 1. INTRODUCTION

Covid-19, popularly known as coronavirus, was for a few months a unknown disease, since the population still did not have access to concrete information and data, characterized by involvement of the respiratory system, this pathology caused a great mortality rate in the world population and a decline in the economy, due to the high ease of contagion. Covid-19 is a disease, called sars-cov-2. A virus that was already circulating in Brazil before the pandemic, as well as Severe Acute Respiratory Syndrome (SARS-CoV-1) and Middle East Respiratory Syndrome (MERS-CoV) that had no cases in Brazil. (Brazil, 2021).

The Coronavirus 2019 (COVID-19) pandemic caused by the new coronavirus (SARS-CoV-2 or Severe Acute Respiratory Syndrome Coronavirus-2) was declared on March 11 2020 by the World Health Organization (WHO) and has been presented as a great public health problem, with the number of confirmed cases and deaths still high, which leads to the need for further clarification on its epidemiology and risk factors for negative outcomes (Who, 2020).

Acre had its first confirmed case of COVID-19 infection reported on 15 March 2020. Accordingly, temporary measures were adopted to address the Public Health emergency, and through Decree No. 5,496, of March 20, 2020, were new measures were established to address the situation. Data indicates that on October 23, 2020 there were 30,121 positive cases recorded, with a total of 686 deaths (Assis *et al.*, 2021).

Coronavirus is a single-stranded RNA virus that causes severe acute respiratory syndrome, already known since an epidemic in Asia in 2003.

However, the virus mutated and became what we know today as SARS-CoV-2, called of COVID-19. The variant that causes COVID-19 brings symptoms such as fever, myalgia, and headache. throat, in addition to other respiratory and gastrointestinal symptoms (Brazil, 2021).

The present research aims to evaluate post-covid-19 cases in patients with comorbidities during 2020 and 2021 from the perspective of Brazil and the state's municipalities of Acre, Rio Branco and Cruzeiro do Sul. Based on this importance, we intend to carry out a application project focused on this theme, using the Problematization Methodology, covering the five stages of the Maguerez Arch. Therefore, this work aims to promote knowledge about the after-effects of COVID-19 infection.

## 2 THEORETICAL FRAMEWORK

The Covid-19 pandemic, declared in March 2020 by the World Health Organization Health (WHO), represented a milestone in global public health, affecting millions of people in different social and territorial contexts. Studies show that, in addition to the immediate risk of infection and death, the disease brought long-term consequences, known as post-traumatic stress disorder. Covid, which impact multiple systems of the human body (Who, 2020; FIOCRUZ, 2021).

The SARS-CoV-2 virus, which causes Covid-19, is highly transmissible and potential to trigger severe respiratory syndromes. However, its effects do not restricted to the respiratory system, also affecting the cardiovascular and neurological systems, muscular and psychological (Guan *et al.*, 2020; Wu & McGoogan, 2020). In patients with comorbidities such as diabetes, high blood pressure and chronic diseases, the outcomes tend to be more severe, with a higher risk of complications and mortality (Huang *et al.*, 2021; Klonoff *et al.*, 2020).

In Brazil, territorial heterogeneity reinforces the need for regional analyses. state of Acre, especially the municipalities of Rio Branco and Cruzeiro do Sul, presents particularities in access to health services and in dealing with the pandemic (Assis *et al.*, 2021). In these locations, primary care was essential for monitoring the patients and to identify frequent sequelae, such as decompensated blood glucose, hypertension and mental health disorders.

The literature shows that post-Covid rehabilitation is an indispensable process, especially in vulnerable populations, as it involves not only functional recovery, but also the social reintegration of individuals. Strategies such as physiotherapy,

psychological monitoring and health education are considered essential (Santana, Fontana & Pitta, 2021; Silva, Pina & Ormond, 2021).

Finally, it is worth highlighting that the construction of knowledge about the consequences of Covid-19 demands active methodologies, such as problematization and the Maguerez Arc, which make it possible to integrate the observation of reality with intervention practices, promoting critical reflections and solutions applicable to the local context (Berbel, 2012; Bordenave, 2007).

## 2. MATERIAL AND METHOD

This is a research project with a theoretical basis based on the assumptions of active methodology, Problematization Methodology using the Maguerez Arc (Berbel, 2012).

The development of this work occurred in part through data from Google Academic and Brazilian Digital Library of Theses and Dissertations, and another part from the collection of observation data from structured reality, which uses secondary data from Municipal Health Department of Cruzeiro do Sul/Ac (SEMSA/CZS) and the Municipal Department Rio Branco Health Department in 2021, at a Basic Health Unit in Rio Branco – Acre (Basic Health Unit size III Maria Áurea Vilela dos Santos), this unit is linked to the Municipal Health Department of Acre - SEMSA, This is a unit focused on family health strategy. As a method of recording the observation of reality and other stages of the project, in the document used there is a record that a meeting was held with the nurse responsible for the unit, where she explained how the service works and how the various health students who do internships could focus on one type of exclusive sequel for research with cohesion and coherence, with the purpose of subsidizing the activity and better reliability of information. The participants of this activity were medical and nursing students.

In carrying out this intervention project, the Maguerez Arch Method was chosen, which is a basic and important tool for the application of the Problematization Methodology, in order to systematize the development of processes in an individualized manner, through of steps that provide participants with a critical reflection of reality on the topic be discussed. This methodology is relevant to the proposal of this project, as it is guided by the

principles of critical methodology, considering the perception of reality and the protagonism of user (Prado *et al.*, (2012).



Fonte: Arco de Maquerez (Domingues, 2012).

Source: Arco de Maquerez (Domingues, 2012)

The arc method was developed by Charles Maquerez and consists of the following stages: observation of reality, key positions, theorizing, solution hypotheses and application of reality (Bordenave, 2002). The Problematic Methodology with Arc of Maquerez is a denomination founded by Neusi Aparecida Navas Berbel and others in 1995-1996 (Domingues, 2012). This teaching method has undergone some modifications since when it was created until how it is presented today.

The first stage, observing reality, has its starting point in reality experienced by the student regarding the problem raised, which will be taken into account in the present work, the data collected and made available by the Municipal Health Departments. The teaching and learning process is related to aspects that the student observes in detail, expressing their perceptions and carrying out a syncretic reading of reality (Bordenave, 2007; Berbel, 1998). Corroborating this impression, the study by Barth *et al.* (2012) tells us that the Maquerez Arch is an excellent strategy for development of a process that seeks a critical, reflective and creative vision and initially, There is insecurity when you don't know exactly how to apply it.

The second stage consists of surveying key points, where the what is relevant and essential for the representation of the observed reality, identifying the variables that can contribute to understanding and solving the problem (Bordenave, 2007; Berbel, 1998).



The third stage of theorizing is when information needs to be analyzed, substantiated, supported, discussed, seeking explanations about reality observed and the understanding of the key positions, enabling some conclusions that will enable the next stage. To assist in this stage, articles are made available that allow greater theoretical support to participants, contributing to the process of theorizing (Bordenave, 2007; Berbel, 1998).

At this stage, throughout the study carried out, the (resident) students developed, critically and creatively, its possible solutions. It is worth noting that the hypotheses must be built from a deep understanding of the problem, using creativity and originality of students, to seek new ways to resolve these (Bordenave, 2007; Berbel, 1998). At this stage, the decisions taken must be implemented in reality.

The fifth stage refers to the application of hypotheses to reality, applying the solutions chosen as viable and the student learns to generalize what he has learned to use it in different situations, allowing him to leave the intellectual realm and return to his reality, applying a response to the problem raised, seeking to transform it in some way (Bordenave, 2007; Berbel, 1998).

In this way, the Arco de Magueres is closed, with the main purpose of taking the residents to a practice of action – reflection – action, that is, to learn the content in a critical and reflective based on their own social reality.

### 3. RESULTS AND DISCUSSION

In light of the theme of the work premise, it was possible to observe through data from collection, that there was a considerable demand from patients with post-covid sequelae with great emphasis on decompensated blood glucose (diabetes), unregulated arterial hypertension and impacts on mental health, during the monitoring of patients who presented post-covid sequelae exclusively to patients who presented uncontrolled blood glucose (diabetics) and impacts on mental health.

According to data from the UBS team in Rio Branco, the space was made available waiting for patients so that residents could present the promotion project and health prevention for patients with post-covid sequelae, a presentation was held



of the sequelae and noted that the most common were decompensated blood glucose, blood pressure irregular and mental health disorders.

Guidance was provided regarding dietary care, the practice of exercise and social well-being and also the issue of monitoring the consequences already diagnosed. Some points were taken into consideration, such as: Guidelines deficient in blood glucose control care, due to lack of knowledge of places specialized in this type of care; little patient knowledge about the need of changes in eating habits to prevent Post-Covid 19 Diabetes; Lack of professionals for specialized care in the area.

According to the Ministry of Health, in Brazil, from 03/27/2020 to 05/06/2021 the number of infected people is 210,147. 125 million people, recovered people 13,591,335, in monitoring 995,279. With the number of accumulated deaths of 416,949 thousand people. (Ministry of Health, 2021). Research is being carried out worldwide in search of accurate data regarding Covid-19 and its possible consequences, a study carried out in the kingdom united, proved that ten patients with covid-19, up to seven can have sequelae, with the mutations are performed monthly comparisons with data collected later (CNB, Brazil).

According to an article by FIOCRUZ on Covid-19: the article mentions a new classification for pathology, on April 14, 2021, samples were collected that detected mutations, including those causing yellow fever and dengue, are capable of impair clotting, some cause bleeding in more severe cases. Considering these conditions are considered viral hemorrhagic fevers. In an article published recently in the scientific journal Memórias do Instituto Oswaldo Cruz, according to research by ten researchers, the new coronavirus (Sars-CoV-2) is the first agent recognized for acting in the opposite direction: increasing the formation of clots, which are called thrombi, which can obstruct circulation. Considering the evidence of hypercoagulation in pathology, the authors propose that the coronavirus is the first infection classified as thrombotic viral fever. Currently, the condition is classified as a Syndrome Severe Acute Respiratory Infection (SARI) (Fio Cruz, 2021).

The study is signed by specialists in intensive care, hematology, cardiology, pathology, molecular biology, who work in six healthcare institutions and



scientific research in Brazil. These include: Hospital Pró-Cardíaco, Instituto Oswaldo Cruz (IOC/Fiocruz), National Cancer Institute (Inca), Faculty of Medicine of Petrópolis (Unifase), United Health Group and Instituto Carlos Chagas (Fiocruz Paraná). At IOC/Fiocruz, The Laboratories of Environmental and Comparative Virology, AIDS and Immunology participate Molecular, Inflammation, Immunopharmacology and Pathology.

Concept – Description: Covid-19 is an acute respiratory infection caused by coronavirus SARS-CoV-2, is potentially serious and highly transmissible. SARS-CoV-2 is classified as a Beta Coronavirus discovered in samples from a bronchoalveolar, which were obtained from some patients with pneumonia of unknown cause until then, in the city from Wuhan, which is located in Hubei province, China, in December 2019.

Origin of Coronavirus - It was initially observed in the month of December of the year 2019, in China, the sick people had in common contact with the Wuhan market, which is famous for selling Chinese cultural foods. Based on studies, scientists obtained as a response to the emergence of the coronavirus is correlated with transmission by through animals, similar to some viruses. It is thought that animals probably hosts were being sold in the Wuhan market. This investigation is done through of epidemiological surveillance to obtain all the data, in Brazil, this investigation is a function of the Unified Health System (SUS) (CNB, Brazil, 2019).

Main risk groups - the specific groups that have the highest chance of developing the most severe form of the covid-19 pathology are the elderly (age similar to or over 60 years), people with heart disease, lung disease, people with low immunity, including transplant recipients or those undergoing chemotherapy, high-risk pregnant women, people with diseases kidney or dialysis patients, people with liver disease, obese people. This means that these groups are infected more than other people? No, in general, it is a higher risk to develop severe COVID-19 (Coronavirus, health gov. 2021).

Table 1 – Data provided by the Municipal Health Department of Cruzeiro do south people served between 60 and 92 years old

People served 4666	Age	Amount
	60 years	43
	61 years old	47
	62 years old	43

	63 years old	44
	64 years old	47
	65 years old	30
	66 years old	48
	67 years old	34
	68 years old	30
	69 years old	31
	70 years	33
	71 years old	39
	72 years old	29
	73 years old	23
	74 years old	17
	75 years	23
	76 years old	30
	77 years old	23
	78 years old	14
	79 years old	23
	80 years	21
	81 years old	25
	82 years old	12
	83 years old	15
	84 years old	17
	85 years old	10
	86 years old	11
	87 years old	8
	88 years old	12
	89 years old	15



<b>People served</b>  4666	90 years	11
	91 years old	13
	92 years old	7
<b>TOTAL</b>		<b>828</b>

Source: Secretariat of the Municipality of Cruzeiro do Sul (2024)

Of these 828 people infected with the virus, 80 died. It is justified that the risk of death from COVID-19 increases with age, this is because the immune system weakens over time, making it harder for the body to fight infections and the elderly are more likely to have chronic diseases such as heart disease, lung disease, diabetes and cancer. These conditions can make COVID-19 more severe and increase the risk of death, since the elderly's immune system works less effectively, which makes them more susceptible to infections and makes it difficult to recover from illnesses and the elderly often take several medications, some of which can weaken the immune system (Coronavirus, health gov. 2021).

Signs and Symptoms - Most common symptoms: fever, fatigue, and dry cough. Less common symptoms: Common: pain, discomfort, diarrhea, sore throat, conjunctivitis; myalgia. Serious symptoms: shortness of breath or difficulty breathing, chest pain or pressure, loss of speech or movement (Coronavirus, covid-19). In the data provided by the Health Department of the municipality of Cruzeiro do Sul, we can identify what was mentioned according to the following table:

Table 2 – Data provided by the Municipal Health Department of Cruzeiro do Sul

south

<b>People served</b>  4666	<b>Fever</b>	2632
	<b>Cough</b>	1959
	<b>Sore throat</b>	1871
	<b>Conjunctivitis</b>	180
	<b>Myalgia (body pain)</b>	691
	<b>Diarrhea</b>	1900

Source: Secretariat of the Municipality of Cruzeiro do Sul (2024)



According to the data above, of the 4666 people treated, fever, cough, sore throat and diarrhea, were the symptoms that most appeared in people who contracted Covid-19. data also shows that incidence rates occurred in March 2021, subsequently there was a gradual reduction, throughout 2021, more than 5 thousand cases of Covid-19 were registered in the municipality of Cruzeiro do Sul.

The Covid-19 pandemic has also had a significant impact on social life and economic of the population of Cruzeiro do Sul, The increase in Covid-19 cases put pressure on the Cruzeiro do Sul health system, which had ICU beds occupied, which to contain the spread of the virus, the City of Cruzeiro do Sul adopted several restrictive measures, such as lockdown and curfew.

Although the year 2021 was marked by the challenge of the Covid-19 pandemic, Cruzeiro do Sul managed to overcome this critical phase thanks to the joint work of authorities, health professionals, and the public. It is important to remain vigilant and follow safety measures. prevention to avoid new outbreaks of the disease

Clinical diagnosis - the initial clinical picture of the pathology is characterized as flu syndrome, this diagnosis can be made by clinical-epidemiological investigation, examination adequate physical condition of the patient, if signs and symptoms characteristic of covid-19 are present. The history of close or household contact in the 14 days prior to the appearance of signs and symptoms in people already confirmed to have coronavirus. These information must be recorded in the patient's medical record, for possibly a epidemiological investigation. Clinical features are not specific and may be the same or similar to those caused by other respiratory viruses, which also occur under the form of outbreaks and circulate at the same time, as in the case of influenza, parainfluenza, respiratory syncytial virus, rhinovirus, adenovirus, other coronaviruses, among others (Brazil, 2021).

Laboratory diagnostics - laboratory diagnostics can be carried out in several ways forms, by molecular biology tests, rapid tests, serology, molecular biology: allows identify the presence of the genetic material (RNA) of the SARS-CoV-2, in respiratory secretion samples, using RT-PCR methodologies, which is performed in real time (RT-qPCR), and loop-mediated isothermal amplification with transcriptase reverse.

Serology: detects IgA, IgM, and/or IgG antibodies produced by the immune response of each individual in relation to the SARS-CoV-2 virus, being able to diagnose the disease in a active or progresses.

Rapid tests: Two types of rapid tests are available: antibody and antigen, using immunochromatography methodology. The rapid antigen test detects the virus protein in samples collected from the nasopharynx/oropharynx, and should be performed in the case of infection active (acute phase) and the rapid antibody test detects IgM and IgG (convalescent phase), in whole blood, plasma or serum samples.

Diagnostic Imaging (High Resolution Computed Tomography – HRCT):  
Some tomographic changes are compatible with a case of covid-19: OPACITY IN GROUND GLASS, bilateral, peripheral, with or without consolidation, and visible intralobular lines (paving). Multifocal FROSTED GLASS OPACITY with rounded morphology, with or without consolidation or visible intralobular lines (paving). HALO SIGN REVERSE or other findings of organizing pneumonia, which are observed later in the disease.

Means of contamination, in addition to transmission by close contact and droplets, the route fecal-oral transmission of SARS-CoV is shown to be considerable under certain circumstances. The correlation with the gastrointestinal involvement of SARS-CoV-2 infection and the isolation of SARS-CoV-2 from patient fecal samples supports the importance of the fecal-oral route in transmission of SARS-CoV-2. (Fio Cruz, 2021).

Treatment for COVID-19 infection varies according to the severity of the symptoms. In milder cases, which include fever above 38°C, intense cough, loss of taste and smell, muscle pain, treatment can be done at home, with rest and use of some medications to relieve symptoms. In more severe cases, which exist difficulty breathing, chest pain, feeling short of breath, treatment needs to be done in hospitalization, it is necessary to carry out a frequent evaluation, in addition to being necessary administer medication intravenously or use respirators to facilitate breathing. The time estimated time until the patient is considered cured is 14 days to 6 weeks, and may vary according to each patient.

Prevention measures/Vaccines, in light of the pandemic caused by the coronavirus SARS-CoV-2, WHO recognition of the pandemic and declaration of a Health Emergency



Public Health Agency of National Importance (ESPIN), the Ministry of Health has established measures to combat and respond to Covid-19. Some of the measures indicated by the Ministry of health, there are non-pharmacological ones, for example: social distancing, respiratory etiquette, use of masks and hand hygiene, cleaning and disinfection of environments, isolation of suspected and confirmed cases and quarantine of contacts of covid-19 cases, according to the medical guidance. The Ministry of Health recommends vaccination against COVID-19, initially of the priority groups according to the National Operationalization Plan of Vaccination. Measures should be used in a unified manner to control the spread of transmission of SARS-CoV-2, also enabling the gradual resumption of activities developed by various sectors and the return of social interaction in a safe way.  
(GM/MS No. 1,565, 2020)

Main consequences after Covid-19, taking into account the current situation, marked by major public health crises, and currently the pandemic caused by covid-19, which is spread throughout the world, becoming a global emergency. The pathology can lead to hospitalization and generate complications in patients such as respiratory problems, loss of muscle mass and strength and several other problems. According to studies, patients presented sequelae after covid-19, generating an intense inflammatory response, which first affects the respiratory tract, especially the lungs. Several studies suggest that the consequences of this infection are not limited to the respiratory system, having been recorded in the system cardiovascular, central and peripheral, nervous system psychiatric and psychological. In the midst of so many recurring sequelae of covid-19, patients with mobility, swallowing, functionality, cognitive impairments and mental health problems. Based on this assessment of fitness for discharge, and some rehabilitation requirements adapted, however, physiotherapeutic rehabilitation is necessary after hospital discharge.

According to Giulia (2020, p. 02) the lasting consequences and symptoms of Covid-19 long-term effects of the condition include mental confusion, heart problems, and fatigue persistent, clarifies that the symptoms of Covid-19 can last for weeks and even months after the diagnosis of the pathology, even in patients who only have mild forms, without need for hospitalization. Do ongoing problems include fatigue, shortness of breath? The rapid heartbeat, joint pain, mental confusion, persistent loss of sense of smell and damage to the heart, kidneys, lungs and brain.

Faced with a set of problems that we could not have imagined at the beginning. Covid-19 is a complex infection, although recent. It can be observed that depending on the lesion caused, and which organs were affected by the infection, an inflammatory process may occur with its own course”, says cardiologist and general practitioner Marcelo Sampaio, from BP – Beneficência Portuguesa of São Paulo. Recent report from the Centers for Disease Control and Prevention of the United States (CDC) showed that the recovery is complete.

Care for Covid-19 Patients in the SUS, the order of care follows the called the Manchester Protocol, which are the risk classifications that determine the priorities according to the severity of the patient's condition. Care for patients with symptoms of Covid-19, begin with the central triage control, which was created by the government to assist people with mild to moderate flu symptoms. In the Unified Health System, medical evaluation is offered in cases where the patient has had symptoms of the disease for seven days with the following flu-like symptoms characteristic of Covid-19 (persistent fever, dry cough, tiredness and difficulty breathing), for at least 7 days, take the rapid test for Covid-19.

After a positive diagnosis, the patient is referred to the medical center according to the needs, and then the person can be released or referred to another unit, if the treatment is hospitalized (Telesus, 2021).

The importance of health guidance during Covid and post-Covid19, educational publications, with data that is easy for the population to understand, conversations, online guidance, aiming at social distancing, showing and discussing practices that integrate in complementary ways health, have been an initiative of entities together with professionals, managers and technical references of SUS, which work in this area to encourage self-care, since the Covid-19 pandemic arrived in Brazil. An example of this is the capital of Pernambuco, which is the coordinator of the program, which visa Integrative Practices created a space on Instagram, a social network used worldwide, with live streaming schedule updated twice a week, and in the municipality of Rio Grande (RS), a self-care guide was provided to healthcare workers and users. In Goiás, the technical team, which works at the reference center for complementary integrative medicine of the state health department (Cremic/SES/GO) created a booklet covering different PICS guidelines, which are practical integrative complements of the unified health system. (Basic Care Notebooks, n. 34), and with the hypothesis solutions: distribute the basic guide on eating habits, promotion care health and reference values of blood glucose and blood pressure for patients at the UBS.

health education activity through a conversation circle, together with partnerships of professionals and nutrition and psychology students to clarify doubts and provide care guidance, at least (02) twice a month. Provide guidance on specialized care points in the area of prevention health promotion.

In the application of reality, the themes involved are oriented towards the construction of new knowledge, changing the observed reality through the assumptions of the plans previous, students reflected on their prior knowledge of active methodology and understanding the fundamentals of problem-based learning and problem-based theory through the following questions: What do I need to solve the problem? in the presence of diabetes, unregulated high blood pressure and impacts on mental health, these are the symptoms most common post-Covid? What is the reason for the increase in Covid-19 mortality? The problem which is caused by hyperglycemia and related system collapse due to glucotoxicity, or high blood sugar levels are a manifestation or incidental phenomenon of the disease severe Covid-19, which is the result of the increased risk of death and not the cause, and how we can change reality? What are the challenges of using active methods?

Based on this assumption, information was analyzed to apply to reality of several studies, including the collection of data from the observation of the real structure of the city of Cruzeiro do Sul made available by the Municipal Health Department and the Basic Health Unit Health in Rio Branco – Acre, where in Rio Branco the students of the medicine/nursing course they treated a total of 19 people, 15 of whom had Covid, and 8 people reported have post-covid sequelae, in this case the most common: Blood glucose and blood pressure decompensated. In this same project, a survey of family data was carried out on family members, with the aim of surveying the observation of reality. The group that carried out the data collection was composed of 4 people, where the members interviewed about 10 people, who had in their family (residence) about 10 to 7 people, observing that on average 7 to 4 people had Covid and later in the post-covid reported the most common sequelae, that is, the percentage of reports of sequelae most common post-covid ranged from 70% to 80% of people affected by Covid according to with the data.

And when it comes to hypertension, adherence to antihypertensive treatment must be improved, as hypertension is a modifiable prognostic factor for COVID-19 infection and can be promoted in primary care through low-cost measures. It is necessary



rescue the principles that guide the construction of the SUS and strengthen the medical care network focused on primary care. Issues related to care, from primary care emergency telemedicine consultations, and facilitate patient access to medications lower risk, should be on the agenda of managers, health professionals and patients. These considerations support the elements of the debate on the complexity of the current system of health, which must be guided by the perspective of strengthening the SUS and the right to health, and the establishment of a primary care institution based on integration, resolution and response to the needs of the local community.

All these symptoms have raised the current situation to potential health disasters. mental, which required more attention from the government, which could only be fully understood after the pandemic came to an end. Therefore, efforts were immediately made to all levels and in the most diverse areas of knowledge to minimize the negative impact on people's mental health. Finally, it is important to invest in adequate health care and, most importantly, invest in general science to shorten this period and train professionals health to deal with the challenges that arise daily.

The lack of economic stability experienced, social isolation, and the fear of dying when contracting the new coronavirus, it led to the development of mental disorders, such as a state depressive, anxiety and stress after the trauma suffered, with hospitalized people or who are undergoing rehabilitation are the most prone to such disorders (Campos *et al.*, 2020). In Table 1 shows several clinical diagnoses of signs and symptoms:

**Table 3 – Clinical diagnoses**

Author	Diagnosis
Guan <i>et al.</i> , 2020	The patient infected with SARS-COV-2 and sick with COVID-19, there are usually manifestations clinical signs that may or may not manifest after the period of incubation, which is on average 5 to 7 days in large most cases, and can vary on average from 2 to 14 days
Chan <i>et al.</i> , 2020; Wu; McGoogan, 2020	The patient may be asymptomatic or present common signs and symptoms of a virus, such as fever, cough, fatigue, itchy or sore throat, diarrhea, pneumonia and related signs and symptoms

	<p>respiratory failure, such as shortness of breath, sounds low respiratory sounds, dullness to percussion (the sound or percussion presented in the lungs is dull and unclear, there may be fluid in the area), with the help of auscultation to check the sound of the lungs, elevation and decrease of tactile tremor of the speech, this is caused by the action of pro-cytokines inflammatory and exacerbated inflammation in an attempt to eliminate the virus, in some cases it is possible identify with the help of pulmonary auscultation, other sounds such as bronchophonia and moist rales, the infectious clinical picture can be characterized as mild, severe or even critical with septic shock, respiratory failure and multiple organ failure</p>
Fung <i>et al.</i> , 2020	<p>there is a mild clinical picture in the vast majority of cases patients, with the exception of patients in the group of risk or with some comorbidity, which can cause a longer delay in the remission of the disease, with prolonged hospitalizations of 14 to 21 days or even lead to death, it cannot be ruled out either. infection in patients without fever, as many were diagnosed without presenting the sign</p>
Moriguchi <i>et al.</i> , 2020	<p>In respiratory cases, there is an increase in alveolar and intestinal inflammatory exudate due to of hypoxia, which induces an anaerobic metabolism, the SARS-CoV-2 causes a cytokine storm, releasing these pro-inflammatory interleukin factors (IL) 6, IL 12, IL 15 and tumor necrosis factor alpha, clinical manifestations include encephalopathy, agitation, and signs of the corticospinal tract are more present in neurological complications in patients with SARS-CoV-2 infection</p>
Fan <i>et al.</i> , 2020	<p>SARS-COV-2 is an acute respiratory infection, and therefore, its main source of dissemination is secretions from the respiratory system, such as phlegm, sneeze droplets, aerosols, with direct contact with the infected person or patient, with or without</p>

	<p>symptoms, thus being considered the pathology of direct transmission, that is, from person to person, although the virus has already been found in a sample rectal swab and blood, thus suggesting other routes transmission, added to lethality, virulence and speed of dissemination, demonstrate why concern of the entire world and health organizations regarding this disease</p>
Van Doremalen <i>et al.</i> , 2020	<p>the chances of spread through patients asymptomatic are described as low, but it is known that the main form of contagion occurs between people from the same family or in a work environment, in group of people who are part of what is called essential workers, or on the front lines combating COVID-19, by health professionals, and also contact with objects, surfaces or any fomite medium carries a high risk of indirect contamination to any person</p>
Zhang <i>et al.</i> , 2020;	<p>Studies carried out in relation to SARS-COV-2, report that it was found that the virus can remain infectious and viable for up to 3 hours, in droplets and aerosols dispersed in the environment by infected patients, characterizing a transmission indirect, the greater or lesser chance of contagion by half fomite, is given by aspects such as quantity 12 and thickness of the secretion released, and the location and type of surface where the material is secreted, therefore defining the variable survival time of the virus, outside a living organism of an individual such as human being.</p>

Source: Own authorship (2024)

It should not be based solely on the diagnosis of more serious symptoms, such as shortness of breath, pneumonia, etc., because it is known that patients with asymptomatic or mild symptoms represented the vast majority of SARS-CoV-2 cases. The pathological picture can only be reflected in patients with more severe clinical manifestations and symptoms, as it is believed that



almost the entire world population infected have not been diagnosed with symptoms specific due to lack of accurate diagnoses (symptoms) and widespread screening tests, it is likely that the entire population is infected or asymptomatic, undocumented cases can exceed 80%, becoming a potential source of infection (GUAN *et al.*, 2020; LI *et al.*, 2020).

Research demonstrates the need for people who have been infected to be rehabilitated, aiming to recover physical, functional and mental disabilities, through professionals qualified in the areas of physical education and physiotherapy, psychology, among others, and must also observe the characteristics and needs of each person (Silva; Pina; Ormond, 2021; Santana; Fontana; Pitta, 2020).

Psychiatric disorders must be monitored strategically, facilitating the individual's overall care. One method to consider is the adoption of remote rehabilitation, which uses telecommunications in telemedicine to reduce damage due to the practicality of time and place. Furthermore, in addition to monitoring with professionals qualified in the treatment, the support of the family is also necessary, so that everyone the doctors' instructions are followed to the letter, generating better results (Santana; Fontana; Pitta, 2020).

Based on another assumption, through the literary review and collection data, it is possible to if it is observed that high blood hyperglycemia in hospitalized patients with heart disease coronavirus (COVID-19) which in 2019 was very common and can lead to worse outcomes, in However, in clinical trials of COVID-19 treatments, hyperglycemia is rarely measured as a factor affecting the outcome.

One of the studies according to Klonoff *et al.*, (2021) in a multicenter analysis hospital-based retrospective of 1,544 diabetic COVID-19 patients from 91 hospitals in 12 states in the United States investigated this issue, the relationship between the scope of control blood glucose levels in hospitalized patients and the clinical outcome of patients hospitalized with COVID-19 was studied, this relationship is in the context of whether glucose in the blood glucose achieved within the traditional blood glucose target window (2-3 days for patients outside the ICU or within 24 hours for patients admitted directly to the ICU) is not as predictive as the result of the admission blood glucose assessment.

The study found that: (1) the mortality rate predicted by blood glucose level 2-3 days blood is better than baseline hospitalization outside the ICU, but admitted directly in the ICU, and (2) achieve the average blood glucose level and glucose level in the higher blood (>250 mg/dl) In comparison, 140-180 mg/dl is associated with a lower mortality.

The analysis did not consider the heterogeneity of treatment options, which may vary depending on the ICU environment and healthcare system. According to Huang *et al.*, (2021) diabetes and hyperglycemia are common in hospitalized patients with COVID-19. hospital mortality of COVID-19 with diabetes and stress-induced hyperglycemia is approximately 30% and 40%, respectively. (Iughetti *et al.*, 2021).

Moving on to case solutions and treatment bias, the study of COVID-19 therapy 19 did not consider the subgroup of patients with and without diabetes or stress hyperglycemia. Based on this important characteristic of the potential patient, it is important to understand whether there are different effects of treatment.

According to data from the WHO study group (2021) for example, including the trial RECOVERY, the largest clinical trial to date, there are no reports on the results of the control blood glucose (although dexamethasone is known to worsen blood sugar). A meta-analysis of seven COVID-19 randomized controlled trials (RCTs) reported that the use of corticosteroids was associated with reduced all-cause mortality 28 days after randomization, and there is a subgroup analysis that includes important variables such as age, gender and sex, but does not mention the effect of steroids on glucose control in blood in this population and the potential differential effects.

Considering the possible effects of various treatments on the following aspects: (a) glucose metabolism, (b) immune response in the physiological environment affected by glucose or diabetes for a long time, or (c) interaction with diabetes medications that may change the response, for treatment or severity of the disease, we recommend at least defining an a priori subgroup analysis to consider these important covariates in trials ongoing or future clinical trials

COVID-19 therapy trials were not adjusted for blood glucose, which which could explain the different results for patients with/without diabetes and hyperglycemia of stress. Diabetes and blood sugar control are important confounding factors of

outcomes of COVID-19, and these factors are generally not considered in RCTs of treatment of COVID-19. Given the ubiquity of hyperglycemia and diabetes and the lack of hospitals' ability to control hyperglycemia, the control of hyperglycemia and hypoglycemia will be an important aspect for future research.

In hospital tests, blood glucose data is stored in records electronic records of all patients. Data can now be analyzed and correlated with the results.

With this in mind, it is believed that a valuable research project is to obtain and combine data from a large number of COVID-19 treatment trials and pool the results accordingly with the presence of diabetes and hyperglycemia, the study will evaluate whether diabetic patients have best results and the impact of these interventions for COVID-19 on sugar control in the blood.

## FINAL CONSIDERATIONS

The present study showed the many consequences left by COVID-19 due to of the infection contracted, as well as addressing various areas of the human system that are impacted by contagion, the most obvious being the respiratory tract, and other essential organs such as the heart, skeletal muscles, and neurological and psychological areas. In addition to the disease that causes loss of functions and physically, the individual is very emotionally shaken and psychologically, which directly affects your well-being and health. In this way, being accompanied by professionals qualified to carry out the treatment, helped people to rehabilitate their functions, as well as reduce the consequences left behind.

In this context, research and laboratory diagnostics related to COVID-19 and its causative agent, SARS-CoV-2, are essential to limit the spread of COVID-19, identify preventive measures and develop vaccines and drugs to combat SARS-CoV-2. Thus, so that the collective and the individual have better results in protecting themselves of this virus that has claimed so many lives, attitudes must be adopted and practiced to prevent the contagion.



It is also concluded that in Cruzeiro do Sul, the groups that were most affected and that were more likely to develop the Covid-19 disease more severely were the elderly over 60 years of age, people with heart disease, lung disease, people with low immunity, including transplant recipients or those undergoing chemotherapy, pregnant women also were part of the high-risk group, people with kidney disease or on dialysis, people with liver disease and obese people, all of these people had a higher risk of developing Covid-19 to a serious degree.

According to data from the Municipal Secretariat of Cruzeiro do Sul and Rio Branco, the mental health requires more attention from the government, which after the end of the pandemic, was found various traumas. Therefore, it should work at all levels and in the most diverse areas of the knowledge, with a focus on minimizing the negative impacts on people's mental health.

The high incidence of diabetes was observed in the studies of Rio Branco and Cruzeiro do

South and its impact on the outcome and mortality of patients with COVID-19 hospitalized patients requires a better understanding of the effectiveness of specific treatments COVID-19 for patients with newly diagnosed diabetes and hyperglycemia (stress).

COVID-19 treatment trials assessed the impact of new interventions in blood glucose control and the potential interaction of these interventions with the state of diabetes/hyperglycemia on the effects of treatment. If blood sugar control in trials clinical trials of viral diseases is not considered, the efficacy of therapeutic antivirals will be questioned.

In conclusion, it is believed that stratified data from large clinical trials helped determine and personalize treatment plans for people susceptible to diabetes, hypertension and prevent future mental health impacts. This approach is to seek antiviral treatments that provide the best results for patients, and will help in research on COVID-19 and may help future pandemic infections.

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