QUALITY OF LIFE AND FATIGUE SYMPTOMS OF POST-COVID-19 PATIENTS IN PARAÍSO DO TOCANTINS

ABSTRACT

Introduction. The long-term problems caused by COVID-19 are still unclear. The quality of life of patients may be in evidence even several months after infection. OBJECTIVE: The aim of this study was to quantify and qualify the relationship between fatigue symptoms and worsening of quality of life in the residents of Paraíso do Tocantins-TO. Main outcomes: Health-related quality of life assessed using the EQ-5D-5L scale.
Material and Method. This study has a quantitative and qualitative character, collecting data records of people affected by the symptoms of fatigue in the post-covid and describing the quality of life they are having with this problem. The field research, exploratory study, and a data collection was done through 2 questionnaires, CFQ-11 and EQ-5D-5L, all questions were answered based on the individual's situation before and after cure of covid-19, characterizing changes in physical and mental states after infection.
Results: 38 people were evaluated using the qualitative tests CFQ-11 and EQ-5D-5L.
Conclusion: It was observed that fatigue after COVID-19 followed a trend in other similar literature, thus stressing the notoriety of the correlation between symptoms of fatigue in the post-covid or covid-long. More tests need to be done, using control and excluding medical conditions prior to virus infection. In addition, collect data such as the use of cigarettes, alcohol and other drugs that may also be associated with the symptoms that the study seeks to investigate.

Keywords: Virus, Long COVID outpatients, Quality of life.

1. INTRODUCTION

On 31 December 2019, the WHO (World Health Organization) [1] was informed of cases of a microbial epidemic related to the increase in cases of acute pneumonia in the city of Wuhan in China [2].Thus, research was developed to know the microbial origin that affected the population of this region, and the corona virus virus, named after this name in 1965, was found due to the crown aspect shown in microscopy, and because the lineage was discovered in 2019, the abbreviation of the virus is called COVID-19. After the outcome of the virus's identification in patients in Wuhan, the epidemic spread rapidly around the world, and in March 2020, who declared that this case now fell into a pandemic [3].

According to the WHO [1], as of the course of this project, there are already about 674 million people infected and 6.8 million deaths worldwide since the beginning of the spread of the virus. According to the Ministry of Health, Brazil has registered about 36 million infected, 364,957 in Tocantins and 15,206 in Paraíso do Tocantins, of which 8,370 are recovered [4, 5]. At the beginning of cases infected with the virus, it was believed that the complications were only respiratory, causing symptoms similar to pneumonia. Being a multisystemic disease, it is acted in several pathophysiological pathways, such as the influence on

inflammatory response, with increased levels of pro-inflammatory cytokines and chemokines, and consequently, immunological changes are evidenced followed by dysfunction of endothelial cells [2]. As studies and reported cases have progressed, it was possible to classify complications by SARS-COv-2 in other systems by the body, such as cardiovascular, musculoskeletal, neurological and neuropsychiatric disorders [6].

Even with all the consequent complications of the virus many people survived the infection, but a portion of the survivors had a prolonged stay in hospitals, both in ICU and ward. Studies in China, Italy, Spain and the United States show that these patients developed what is called "Post-Covid-19 Syndrome", which may affect up to 80% of those recovered, which is the prolongation of symptoms and the emergence of new ones. However, recovered who presented symptoms during the infection in a more lenient manner, who did not need hospitalization, may also present medium to long-term symptoms [2].

Post-covid syndrome is diagnosed from 4 weeks after recovery from the disease. In a cohort study, 73,435 patients were followed up and part showed signs of sequelae even after 6 months after the end of infection [2]. Symptoms can be associated with covid-19 infection, because in 2012 an epidemic of MERS-Covid (Middle East Respiratory Syndrome) was reported, and as in Severe Acute Respiratory Distress (SARS), had long-lasting symptoms in people who recovered from viral syndrome [7]. Fatigue problems are common and with reported cases of up to 18 months in MERS-CoV, similar to those of covid-19, which can reach up to 6 months [8]. A systematic review study followed by a meta-analysis of 15 published studies, it was possible to group 47,910 patients and among them around 80% showed at least one symptom related to post-covid, the most prevalent being fatigue, present in 58% of patients [9].

Fatigue is characterized as a common problem resulting from other diseases such as cancer, multiple sclerosis and post viral syndromes. However, when fatigue becomes chronic, symptoms can be intense and have a long duration. Consequently, the individual's routine changes drastically, preventing them from progressing with daily tasks, becoming dysfunctional, causing the quality of life to drop. Prolonged fatigue has a correlation with economic consequences for society, besides causing increased anxiety and inciting cases of depression [10].

According to one study, those affected by MERS-COV during the epidemic had symptoms of prolonged fatigue, reaching up to 18 months after infection [8]. Some authors already report severe cases of post-covid-19 syndrome, with symptoms, especially persistent fatigue, for a long period of up to 6 months [9].

To measure fatigue levels, the CFQ 11 (Chalder Fatigue Scale) questionnaire is responsible for establishing the extent of fatigue and its severity. During the questionnaire, the items to be answered follow a criterion of functionality and sensations of the individual instead of opinions and belief [11]. Taking into account this prolongation of symptoms, it is common to try to relate the quality of life of these affected people. In one study, 488 people were followed up, and 32.6% complained about the worsening of quality of life after recovery from the disease, and most had dyspnea and tiredness, followed by chest pain and cognitive problems that were propitiating the delay in returning from the physical normality of the person, such as returning to work, take care of the house among other activities that were previously carried out without problems [12].

Quality of life is something that has become a multidisciplinary content that gains space in scientific studies. Become a criterion used both individually and in large populations, aiming to provide knowledge of the patient the disease itself in order to try to solve them [13].

Patients with chronic diseases have their life changed according to the intensity of symptoms, if not treated or monitored, the quality of life falls progressively over time, affecting the capacity of self-perception, self-esteem and also functionality within society. The quality of life in people has to be treated with eximia importance, especially with people with sequelae, this requires the individual care of each person to understand and treat the problem [14].

The use of the EQ-5D-5L is a very important and accurate tool in the study of measuring the quality of life of the individual according to a questionnaire that analyzes five areas that are mobility, self-care, day-to-day activities, pain or discomfort, and anxiety or depression. And in these areas the individual will have to select 5 levels that vary in trouble- free, few problems, moderate problems, severe problems and extreme problems. This makes it easier to identify the most affected areas in quality of life. On the same platform, the EQ-VAS is used, a visual analog scale of how the individual is feeling at that moment, having 0 as the worst possible and 100 as best as possible [15].

Knowing the prolonged impacts on the infected, both physiologically and socially, has the urgency of the UHS (Unified Health System) to adapt to ensure the care of all. According to articles 1, 2, 3 and 4 of law 8.080/90, the UHS should be paid to actions of health promotion, protection and recovery, in addition the UHS has 3 principles, which are universality: ensuring equally to all and for all, at all social levels; equity: the system must devote itself to seeking where inequality is greatest and adapt to these inequalities in a unique way; integrality: Targets the patient with a complete vision, to improve the care of him at all levels of health [6].

Therefore, this study aims to quantify and qualify the relationship between fatigue symptoms and worsening of quality of life in the residents of Paraíso do Tocantins. For this to be done will be´ used parameters of the Questionnaire EQ-5D-5L that aims to measure quality of life in 5 areas, being them, mobility, self-care, day-to-day activities, pain or discomfort and anxiety or depression, in addition to the EQ-VAS that measures on a visual analog scale as the individual is feeling at that moment [15]. With this information, the municipality can benefit in assembling the strategy to serve this public, aiming at measures ranging from physiotherapy, nutritional care and psychological support [16].

2. MATERIAL AND METHODS

Type of study: This study has a quantitative and qualitative character, collecting data records of people affected by symptoms of fatigue in the post-covid and describing the quality of life of this community through the application of 2 questionnaires.

Place of study: The study was carried out in the municipality of Paraíso do Tocantins (Latitude: 10° 10' 20" Sul, Longitude: 48° 52' 52" Oeste), where data sources were collected by the Ubs Primary Care System in the municipality of Paraíso do Tocantins and the Integra Saúde Portal of the Tocantins Government, in 2022 between January and May.

Inclusion criteria: Individuals over 18 years of age, SARS-CoV-2 test confirmed in laboratory, individuals cured at least 4 weeks before the interview for this study and who signed the Informed Consent.

Exclusion criteria: Individuals who had not confirmed and notified the positive test for SARS-CoV-2, individuals with positive test for SARS-CoV-2, but with less than 4 weeks before the application of the questionnaire, individuals who do not reside in Paraiso do Tocantins and who did not sign the TCLE.

CFQ-11, EQ-5D-5L questionnaires applied and EQ-EVA test

The study has a means of field research, exploratory, and data collection through two questionnaires: CFQ-11 and EQ-5D-5L. All questions were answered based on the individual's own situation before and after the covid-19 was cured, characterizing changes in physical and mental states after infection.

The first CFQ-11 questionnaire was used to measure whether the individual had signs of fatigue and to measure its severity. It consists of 11 questions that are evaluated in two ways, the first that evaluates the answer in a binary way from 0-1, with the maximum sum of 11 points. If the answers add up to 4 or more, then signs that may show fatigue were characterized. The other way this questionnaire was evaluated was in relation to fatigue severity and responses range from 0 to 3 points, with a maximum score of 33.

To measure the quality of life of individuals, it was using the Questionnaire of the EuroQol-5D-5L system, called EQ-5D-5L. Made to use a metric for signs of possible worsening in quality of life at that time, and in this study was used to measure whether the daily life of the interviewers was affected by the post-covid symptoms. The test consists of questions that will evaluate on a scale of 1-5, being 5 the worst quality of health. The variables in this test include mobility, self-care, routine activities, pain/discomfort, and anxiety/depression.

The interviewee also answered the EQ-EVA test, a visual analog test, which will have to visualize a ruler and say what level of health is at the current moment of the interview, with 0 being the worst possible health and 100 the best possible health.

Through the database, provided by the municipal health department, of all patients who had the test proven positive for COVID-19, 38 individuals (n=38) were randomly selected and who met all inclusion criteria. Using the address and telephone number also available, the home visit was made by the researchers who administered the questionnaires mentioned above. The collected data were calculated in absolute frequency and relative percentage, assisting in the creation of tables and graphs according to the response scores. Plate 1.

The study protocol was approved by the institute’s internal review board (CAAE58231222.5.0000.5518) and all 38 patients signed an informed consent form.

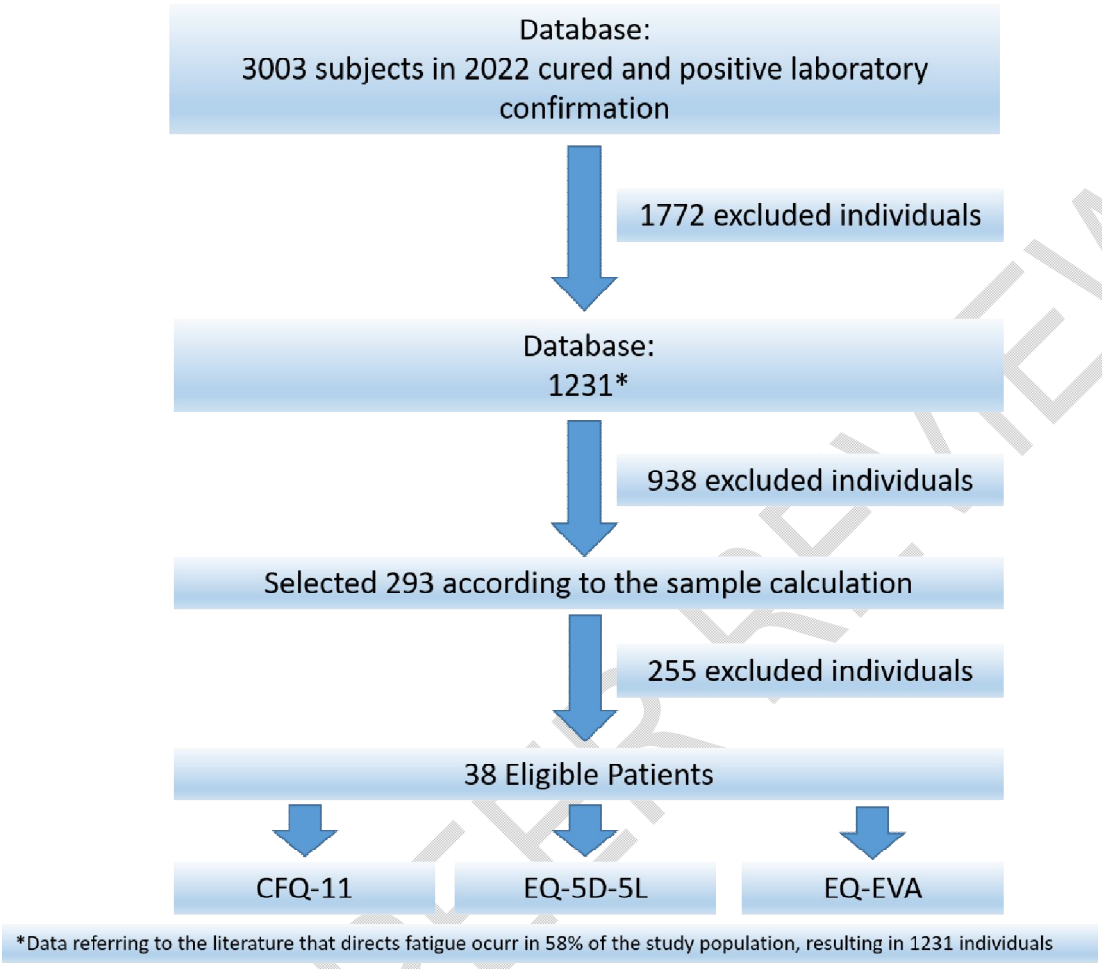


Plate 1: Study protocol

3. RESULTS

Respecting the inclusion criteria, 38 people were evaluated using the qualitative tests CFQ-11 and EQ-5D-5L. The CFQ-11 quantifiedly shows the results obtained from the fatigue test, in which 23 of the 38 (60.53%) individuals reported having symptoms of the condition so briefly mentioned, with an average overall binaria score of x=7.04, with a standard deviation of ±2.25. Individuals who did not show signs of fatigue, 15 of the 38 interviewees had an average (x) score of 1.53, with ±1.13. The severities of fatigue symptoms were described by scores of 0-
33, all participants had an average of 16.18 points, standard deviation of ±4.74 (Table 1).

Table 1. X=mean. SD= Standard Deviation. Individuals: Number of individuals interviewed. The table shows the results of the CFQ-11 and EQ-VAS questionnaires that provided the results of people who indicate fatigue or who are not fatigued (≥ 4 or ≤4), the severity of this fatigue (0-33).

	X	DP	Individuals
FATIGUE	7,04	±2,25	23 (60,53%)
NO FATIGUE	1,53	±1,13	15 (39,47%)
SEVERITY FATIGUE	16,18	±4,74	38

The results obtained through the qualitative test EQ-5D-5L that mediated the level of quality of life of the interviewees, in order to obtain results that show the worsening in quality of life in patients with long covid. This method subdivides the questionnaire into 5 areas, mobility, self-care, habitual activities, pain/discomfort, anxiety/depression. In mobility, N=25 has no problems, N = 2 has mild problems, N = 6 has moderate problems, N = 4 has severe problems, and N =1 has extreme problems. Self-care N =32 has no problems, N = 1 has mild problems, N = 2 has moderate problems, N =0 has severe problems, and N =2 has extreme problems. Usual Activities, N =23 has no problems, N =7 has mild problems, N =4 has moderate problems, N = 3 has severe problems, and N = 1 has extreme problems. Pain or discomfort, N = 16 has no problems, N=5 has mild problems, N=10 has moderate problems, N=7 has severe problems and N = 0 has extreme problems. Anxiety or Depression, N= 19 has no problems, N=4 has mild problems, N=11 has moderate problems, N= 2 has severe problems, and N=2 has extreme problems (Table 2).

Table 2. Frequency of responses from the overall score on through the EQ-5D-5L questionnaire. The levels highlight the degree of severity of problems related to mobility, self-care, habitual activities, pain/discomfort and anxiety and depression. Being 1 no problem and 5 severe problems. The percentage shows the percentage of people who answered which level fits the most.

	Mobility	Self-care	Usual Activities	Pain/ Discomfort	Anxiety/ Depression
Level 1 No Problems	25 (66%)	32 (84%)	23 (61%)	16 (42%)	19 (50%)
Level 2 Mild Problems	2 (5%)	1 (3%)	7 (18%)	5 (13%)	4 (11%)
Level 3 Moderate Problems	6 (16%)	2 (5%)	4 (11%)	10 (26%)	11 (29%)
Level 4 Serious	4 (11%)	0 (0%)	3 (8%)	7 (18%)	2 (5%)

Problems					
Level 5 Extreme or incapable problems	1 (3%)	2 (5%)	1 (3%)	0 (0%)	2 (5%)
TOTAL	100%	100%	100%	100%	100%

Figure 1 elucidates the frequency of answers that the interviewees gave about mobility problems. N=66% answered they had no problems, 5% reported having mild mobility problems, 16% had moderate problems, 11% had severe problems and 3% had extreme problems. Figure 2 shows the answers about the self-care item, which would be around being able to bathe alone, use the toilet and among others, so 84% answered that they had no problems performing these activities, 3% had mild problems, 5% moderate problems, 0% had severe problems and 5% had extreme problems to perform. Figure 3 measures the problems of performing habitual activities, such as work, household services, and others. Of the 38 interviewees, 61% reported having no problems, 18% reported having mild problems, 11% moderate problems, 8% severe problems and 3% extreme problems. Figure 4, elucidates problems regarding pain or discomfort of the interviewed individuals, with only 42% reporting no problems, 13% having mild problems, 26% having moderate problems, 18% having severe problems and 0% having extreme problems. For figure 5, the problems are around depression and anxiety, with 50% of participants with no problem, 11% with mild problems, 29% with moderate problems, 5%. With serious problems and 5% with extreme problems

Figure 1. Overall mobility score using the EQ-5D-5L questionnaire. The levels highlight the degree of severity of mobility-related problems, with 1 being no problem and 5 severe problems. The percentage shows the percentage of people who answered which level fits the most.

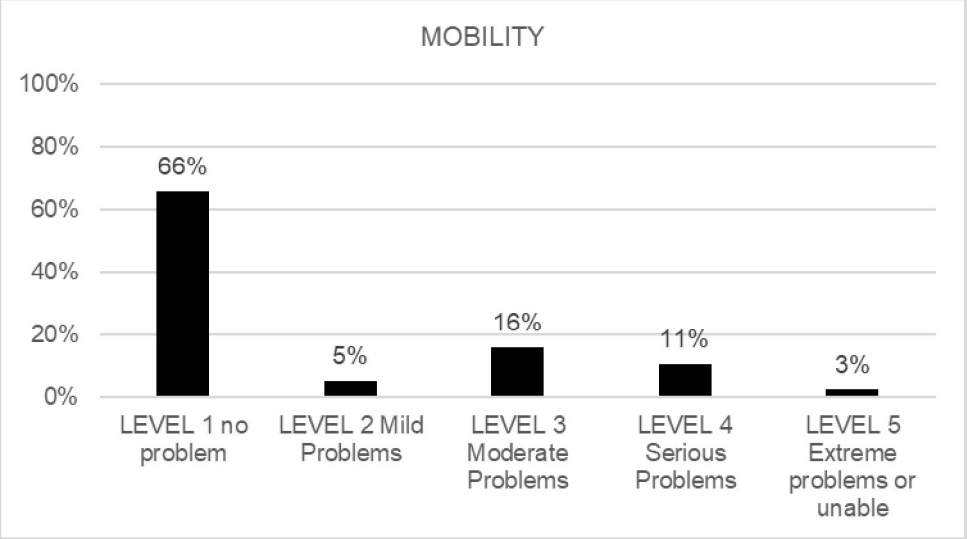


Figure 2. General self-care score using the EQ-5D-5L questionnaire. The levels highlight the degree of severity of self-care-related problems, with 1 being no problem

and 5 severe problems. The percentage shows the percentage of people who answered which level fits the most.

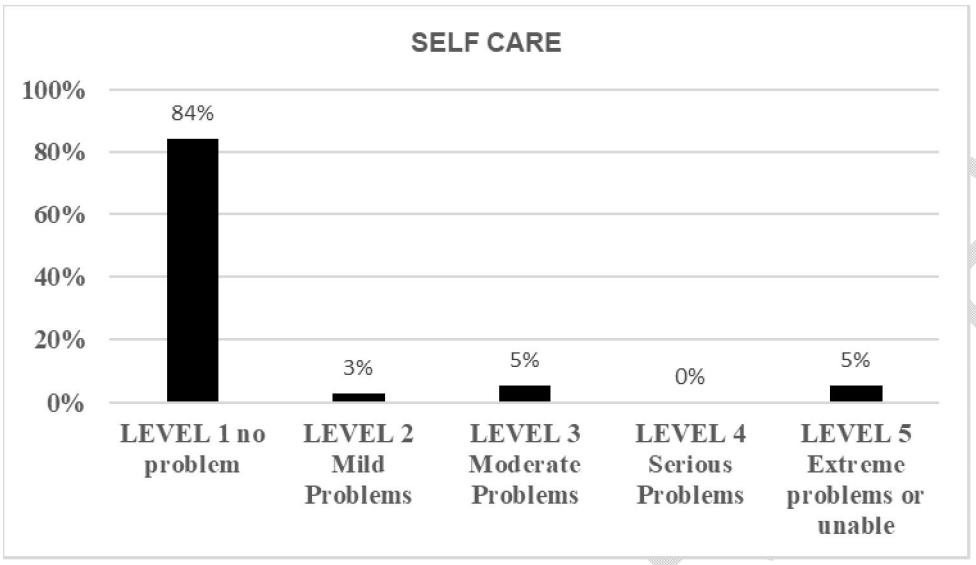


Figure 3. Overall score on Usual Activities using the EQ-5D-5L questionnaire. The levels highlight the degree of severity of problems related to habitual activities, with 1 being no problem and 5 severe problems. The percentage shows the percentage of people who answered which level fits the most.

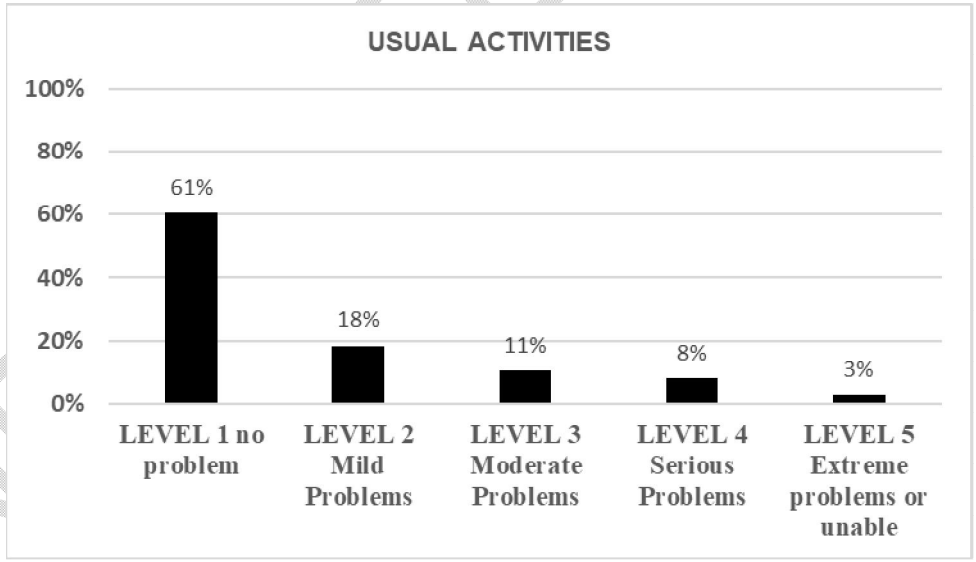


Figure 4 . Overall score on Pain or DISCOMFORT through the EQ-5D-5L questionnaire. The levels highlight the degree of severity of problems related to Pain or DISCOMFORT, with 1 being no problem and 5 severe problems. The percentage shows the percentage of people who answered which level fits the most.

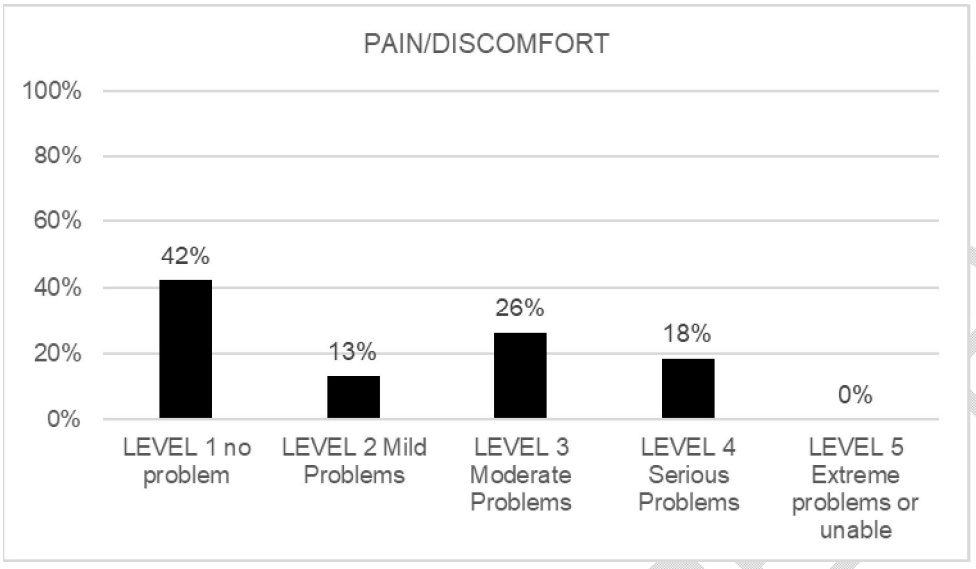
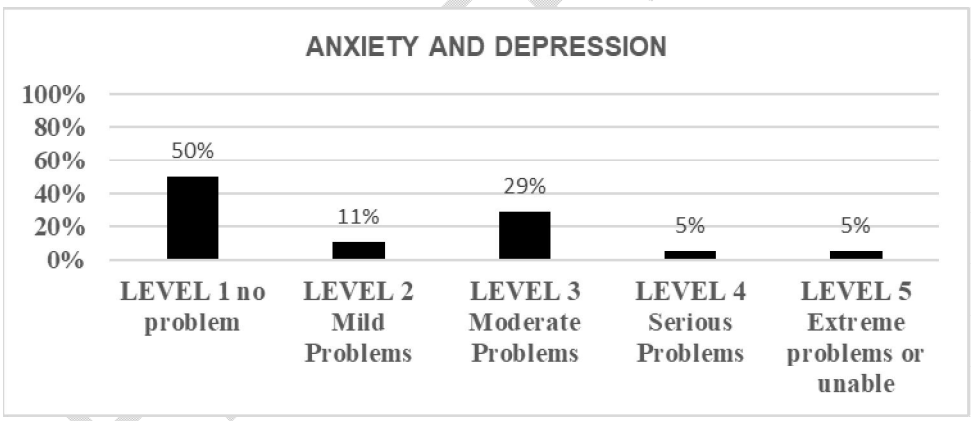
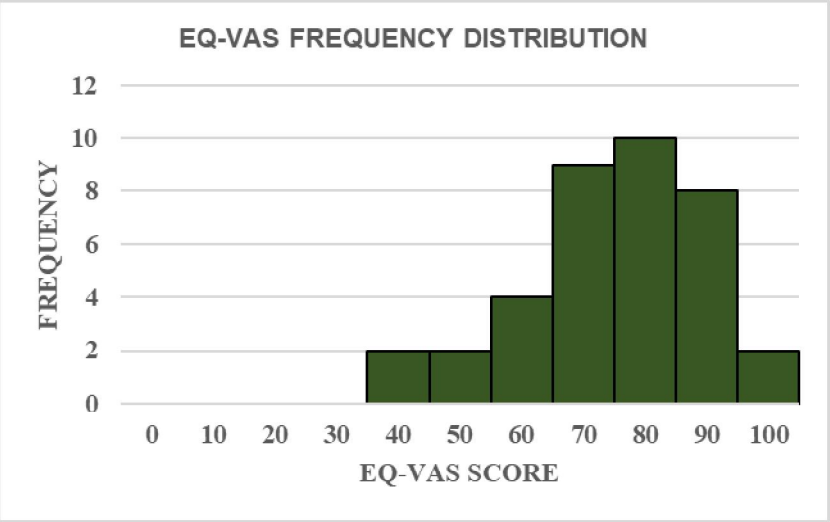


Figure 5. Overall score on Anxiety or Depression through the EQ-5D-5L questionnaire. The levels highlight the degree of severity of problems related to Anxiety or Depression, with 1 being no problem and 5 severe problems. The percentage shows the percentage of people who answered which level fits the most.



Of the 38 individuals, the average 76 ±15.34 (X+SD) in the visual analog score EQ-VAS, of the interviewee's own health. Figure 6 elucidates the frequency of visual health score responses, obtaining two answers with number 40, showing the worsening in quality of life, about 4 people answered with the number 60, 9 with the number of 70, 10 with the number 80, 10 and 8 with the number 80 and 90, respectively.

Figure 6. EQ-VAS Visual analog form. The score is the score that describes the respondent at the time of the survey and the frequency shows the number of people who responded to the same or approximate score.



4. DISCUSSIONS

Through form CFQ-11, this study aimed to analyze the presence of fatigue symptoms, being predominant in patients with COVID-19 symptoms more than 12 weeks, thus being characterized as covid-long [2]. This study shows that the majority of respondents, N= 60.53%, showed signs of fatigue because they had a score in the form of 4 or more, when asked the current situation with before they had COVID-19 (Jackson 2015). Analyzing this study with another study that analyzed 108 patients with long COVID-19 symptoms, 53% presented fatigue results in the CFQ-11 [17]. Thus, the results obtained are in accordance with the literature described.

With the same form, you can measure the severity level of fatigue. According to author Knut Stavem, in a study on the prevalence of fatigue in patients with COVID-19 with 456 participants, it was possible to establish an average of 15.1 in the fatigue symptom severity model. Among the 38 interviewees in this study, an average of 16.28 were obtained, on a scale of 0-33, showing that the result obtained in relation to the fatigue severity scale is with the literature cited. Thus, the study can analyze, through the collection of the answers of the interviewees who compared life before and after COVID-19, of course symptoms of fatigue.

In the course of there being a worsening in the quality of life of the individual measured by the Questionnaire EQ-5D-5L and EQ-VAS, thus measuring aspects such as mobility, self-care, in the usual activities, if he/she has problems of pain or discomfort and the presence of signs of anxiety or depression, finally the interviewee himself characterizes the state of his health being 0 the worst possible and 100 the best possible.

EQ-EVA measured an average of 76 in general health, and the average in studies is 70 as the minimum of a group with a lower than desirable quality of life [18]. Thus, it can relate that the level of general health may be linked to the prevalent symptoms of fatigue in the post-covid that worsen the quality of life of the citizen. Even though it is above 75, the mean, the standard deviation is around 15, so many participants had a score lower than the established average of acceptable quality of life.

All the data obtained on the qualitative tests of the worsening of the health of the individuals showed a relevant proportion on the total interviewee. Within the 5 spheres of quality of life,

Pain or Malaise and Anxiety or Depression had a percentage of moderate cases approaching individuals who reported no problems. The other modalities, such as self-care and usual activities obtained results that show the absence of problems in these questions. According to the author César Fernández de las Peñas, in his study using the EQ-5D-5L in patients with long covid, found that most of the interviewees had a prevalence among the spheres of pain/discomfort and anxiety/depression, following the same results found in this study in the municipality of Paraíso of the Tocantins.

The study had its limitations such as the difficulty of communication and acceptance in filling out the forms, in addition to these diseases predicted to covid-19 were not collected in order to establish whether specifically the infection by the virus was the cause in the symptoms of fatigue and worsening in quality of life.

4. CONCLUSION

These results show promising results that establish parameters to measure the quality of life of these people suffering from post-COVID-19 fatigue that followed with results similar to other literatures, thus establishing the notoriety of the correlation between the symptoms of fatigue in the post-covid or covid-long. More tests need to be done, using control and excluding medical conditions prior to virus infection. In addition, collect data such as the use of cigarettes, alcohol and other drugs that may also be associated with the symptoms that the study seeks to investigate.

This review study concludes that according to the literature used it is possible to understand that the most prevalent symptom is fatigue, present in more than half of those affected by sequelae. In addition to fatigue, the quality of life of those who recovered from the acute phase worsened compared to before infection, so we can understand that the effects of covid-19 powder swell beyond symptoms. It is necessary to give greater attention to these patients who have not been able to establish normality in their lives, with a greater number of studies together with health services to develop strategies aimed at better quality of life after COVID-19.

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