

# Functional Assessment of Pain in Post-COVID-19 Patients

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**Abstract:** According to the International Association for the Study of Pain, it is an unpleasant sensory and emotional experience linked or similar to that linked to an actual or potential tissue injury. A practical instrument for assessing pain is the Abbreviated Pain Inventory, which is a questionnaire developed to assess the severity and effect of pain on the individual's daily functioning. It is because of the aforementioned that the purpose of this analysis is based on Identifying the impact and severity of pain in the daily activities of Post-COVID-19 patients, according to the BPI questionnaire. The type of study selected for this research work is descriptive, cross-sectional, non-experimental and retrospective, the approach is quantitative. A digital survey was used through Google Forms, based on the abbreviated Pain Inventory (BPI), in addition to containing items on the sociodemographic characteristics of the study sample and the symptoms in Post-COVID-19 patients. Results, the symptoms referenced by Post-COVID-19 patients are numerous, among which stand out, muscle fatigue with 26 individuals in the sample, generalized weakness with 23 individuals in the sample, and memory alterations with 18 individuals in the sample. shows. In general terms, it is observed that the pain perceived by the study participants has not greatly disturbed their general activities, only 13 respondents report a moderate to severe degree of disturbance.

**Keywords:** Pain, B. P. I., Post-COVID-19

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## 1. Introduction

According to the records of the World Health Organization (WHO), the beginning of the inconveniences derived from the disease COVID-19 or SARS-CoV-2, officially reported in December 2019 in the town of Wuhan - People's Republic of China, causing serious inconvenience to the entire population until now. Although, there are several cases in which during the COVID-19 infection, the patient does not suffer from symptoms or significant deterioration in their health. On the other hand, there is a high rate (10 to 20%) of patients who suffer from moderately and severely serious health problems, mainly in the respiratory, circulatory, digestive, muscular and even immune systems. [1]

Now, of that group of people who seriously and severely developed the disease and once its critical stage has been completed, the Post-COVID-19 recovery stage begins, which in a high percentage are patients with serious and varied sequelae disease, one of them being pain. [10]

The presence and severity of somatic symptoms during acute infection have been shown to correlate closely with the

subsequent development of chronic fatigue and pain. These symptoms reduce quality of life, are difficult to identify in their diagnosis and do not resolve easily with the usual treatments. [11]

Of all of them, the most prominent symptoms are myalgia, referred pain and generalized hyperalgesia. It manifests itself in different locations, both at the cephalic level and in the thorax or in the limbs. [12]

Furthermore, it responds to variable characteristics: the causal mechanism is unknown after ruling out organicity, although it is being studied; and it is only associated with convalescence after COVID-19. [8]

According to the International Association for the Study of Pain (IAPS), pain is an unpleasant sensory and emotional experience associated or like that associated with an actual or potential tissue injury [2].

A practical tool for the assessment of pain is the Inventory of Pain Abbreviated or known by its acronym in English as BPI, it is a questionnaire developed to evaluate the severity and impact of pain on the daily performance of the person. The BPI is a multidimensional pain assessment instrument that provides information on the intensity of pain and its

interference with the daily activities of patients. Also assess the description, the location of the pain and the level of relief provided by the treatment. [4]

In daily clinical practice, a rapid, one-dimensional pain assessment is often sufficient. However, when pain is the main problem of the patient and, therefore, the multidimensional assessment is essential, the BIS may be the appropriate instrument to use. Furthermore, in complex situations, the BIS allows the presentation of results in a scientifically accepted way.

It is used in different pathologies and pain syndromes that range from acute pain situations to chronic pain. [3] It is because of the that the objective of this study is to assess the impact and severity of pain in the daily activities of Post-COVID-19 patients, according to the BPI questionnaire.

The reason for the present study is due to the high number of sequelae referred to in Post-COVID-19 patients, but in the same way, the evidence raises the existence of Post-COVID-19 pain, although the mechanisms involved and the impact of pain have not been fully demonstrated.

That is why the present study aims to identify the impact and severity of pain in the daily activities of Post-COVID-19 patients, according to the BPI questionnaire. The beneficiaries of the study will be health science professionals, who will be able to observe the impact of pain in Post-COVID -19 patients.

## 2. Materials and Methods

### Study design

The type of study selected for this research work is descriptive, since it attempts to observe situations and events, what they are like and how they manifest themselves at a given point in time. According to the temporality, it is transversal, because its objective is to know the behavior of the variables at a certain moment and not their evolution over time. Analyze their incidence and interrelation at a given moment.

The type of design according to the intervention of the researcher is non-experimental since they are carried out without direct manipulation of the variables. The phenomena are observed as they occur in their natural context, and then analyzed. Retrospective because the study is carried out in the present tense.

A digital survey was used through Google Forms, based on the abbreviated Pain Inventory (BPI), in addition to containing items on the sociodemographic characteristics of the study sample and the symptoms in Post-COVID-19 patients.

### Subjects studied

Population: patients of both sexes, in the Post-COVID-19 stage, from the city of Asunción and Greater Asunción.

Sample: 41 patients of both sexes, in the Post-COVID-19 stage, from the city of Asunción and Greater Asunción.

Type of Sampling: The sampling is non-probabilistic for convenience, since only patients with the mentioned characteristics were taken into account.

### Inclusion and exclusion criteria

Inclusion Criteria: patients of both sexes, in the Post-COVID-19 stage, from the city of Asunción and Greater Asunción.

Exclusion Criteria: Patients with systemic or metabolic pathologies. HBP Diabetes Mellitus.

### Analysis of data

After data collection, they were processed and tabulated with the Microsoft Excel 365 office software. The quantitative variables were expressed as average and standard deviation and the qualitative variables were shown in frequency and percentage.

### Ethical conduct of research

The study was carried out following the international ethical standards established in the Universal Declaration of Human Rights (United Nations), the Universal Declaration on Bioethics and Human Rights (UNESCO), the Declaration of Helsinki (AMM), and the International Ethical Guidelines for Biomedical Research in Human Beings (CIOMS / WHO). The personal data of the patients will not be published or disseminated.

The points of view expressed in this research, as well as the different sources cited are the sole responsibility of the author, the content of the same does not reflect the position of any public or private entity.

## 3. Results

*Table 1. Distribution of the sample according to age.*

Average ages	29.81
Standard deviation	6.55
Maximum	52
Minimum	20

The average age of the study sample is  $29.81 \pm 6.55$  years, with a minimum value of 20 years and a maximum value of 52 years, the distribution of the sample according to sex was 21 individuals for the female sex and 22 for the male, with regard to the place of residence, we can see that 17 individuals belong to the city of Asunción, followed in fewer numbers by the city of San Lorenzo with 7 individuals and the city of Lambaré with 6 individuals.

The symptoms referenced by Post-COVID-19 patients are numerous, among which stand out, muscle fatigue with 26 individuals in the sample, generalized weakness with 23 individuals in the sample, and memory alterations with 18 individuals in the sample.

According to the patients referring to the worst pain perceived in the last 24 hours, it is seen that 21 individuals in the sample reflect having perceived intense pain.

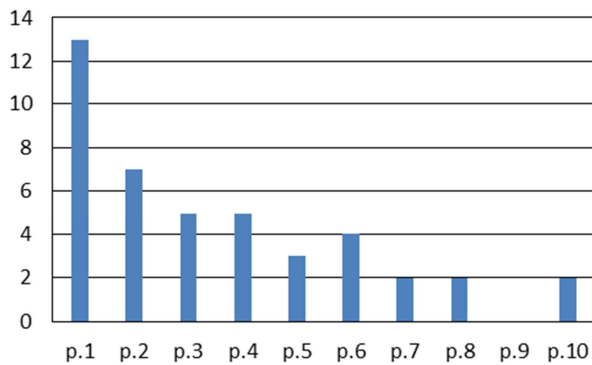
Based on the mildest pain that they have perceived in the last 24 hours, it is observed that 39 individuals in the study sample report having perceived slight intensities of pain.

Regarding Perceived pain, on average, in the last 24 hours, according to the respondents, it is observed that the perception of pain on average is mostly low, accounting for 27 individuals in the sample, the rest maintain high levels of

pain. perception about the intensity of pain.

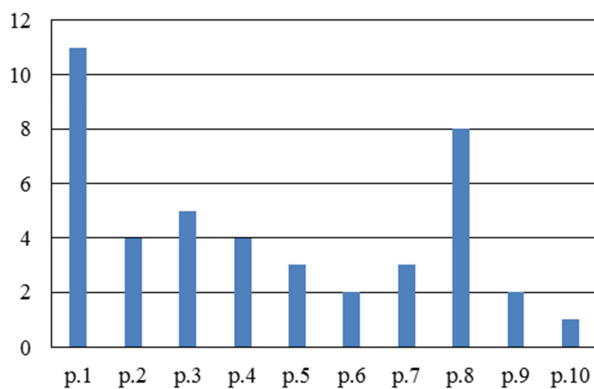
At the time of the evaluation, the respondents reported low perceptions of pain intensity, since 40 individuals in the sample took low levels of pain perception as a reference.

How much has your pain disturbed your General Activities?



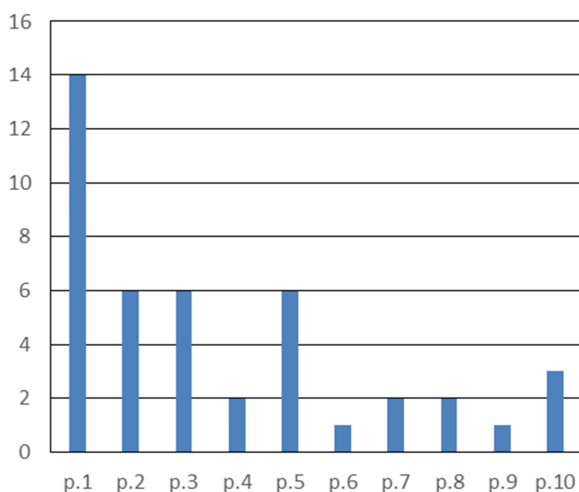
**Figure 1.** Impact of pain on your general activities.

How much has your pain disturbed your mood?



**Figure 2.** Impact of pain based on the emotional characteristics of the study sample.

How much has your pain disturbed your relationships with other people?



**Figure 3.** Impact of pain based on participatory characteristics and relationship with other people.

In general terms, it is observed that the pain perceived by the study participants has not greatly disturbed their general activities, only 13 respondents report a moderate to severe degree of disturbance.

Regarding the impact of pain based on the emotional characteristics of the study sample, we can see that although a majority report that the degree of disturbance of the mood in relation to pain is low, 19 individuals in the sample report a greater degree of affectation.

Regarding the impact of pain based on the participatory and relationship characteristics of the study sample, it can be observed that 15 individuals in the sample report that pain has disturbed their relationships with other people.

## 4. Discussion and Conclusions

Regarding the results of the study, we can observe that most of the Post-COVID-19 patients developed mild forms of pain, which have had little influence in relation to their functionality. Some studies refer to the importance of studying pain based on the symptoms reported by some patients. [5]

Within the sociodemographic characteristics of the study sample, we mention that the entire sample is part of a socioeconomically active population. Regarding the most referenced Post-COVID-19 symptoms, we find muscle fatigue and generalized weakness, which raises the possibility of future research that analyzes both symptoms, in also to what is referenced by other studies. [13]

In general terms, the functional impact in carrying out the general activities of the patients is minimal, although we do observe a minimum number of functionally limited patients, unlike other studies. [14]

Regarding the functional impact in relation to the emotional characteristics, the result also mentions a low functional impact, this may be due to multiple factors, such as, for example, some authors express that the levels of resilience in Post-COVID-19 patients 19 are normal. [13] Although, the same study mentions that Post-COVID-19 patients are prone to a state of depression and anxiety, the same that must be attended by specialists providing psychosocial support. [6] Unlike the study by the Spanish Society, where it is stated that 91.4% of people with chronic pain affirm that the confinement associated with COVID-19 has affected their emotional state. [7]

In the present study, we verified that the impact and severity of pain in the daily activities of Post-COVID-19 patients, according to the BPI questionnaire, is generally low, however, there are patients who had moderate involvement to severe depending on the pain and its activities, the diversity in these results may be related to the severity of the infectious picture, the associated comorbidities and the time after the infection, as mentioned by other studies. [15]

Some authors refer that Post-COVID-19 pain may be part of what is known as Long COVID-19 Syndrome, however, it is not a homogeneous or unique entity, and a great variation

in the estimates of its incidence and prevalence has been described. Chronic fatigue, as well as pain, are the most frequently described symptoms and often occur in the absence of objective abnormalities of respiratory function or fibrosing lung lesions. [9]

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