International Journal of Health Sciences and Research
Volume 14; Issue: 6; June 2024
Website: www.ijhsr.org
Original Research Article *ISSN: 2249-9571*

A Survey Study on the Prevalence and Correlation of Physical and Mental Fatigue in Long COVID Patients

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DOI: https://doi.org/10.52403/ijhsr.20240604

ABSTRACT

Background: As the most prevalent post-COVID symptom, there is relatively little information on quantifying the amount of physical and mental fatigue in post-COVID patients using any particular outcome measures. Hence, this study was carried out to assess the prevalence and correlation of physical and mental fatigue among post-COVID patients.
Method: This was conducted among the post-COVID subjects of Odisha with confirmed COVID both online and offline during the third wave of COVID, in which about 307 confirmed subjects were scanned from about 400 responses, revising the inclusion and exclusion criteria.
Results: 213 (69%) of the subjects possessed fatigue as the most prevalent post-COVID symptom. Physical fatigue of about 248 (81%), mental fatigue, as well as pandemic fatigue of about 193 (63%). 177 (58%) of the female subjects was affected. 193 (63%) were from the younger age group, 53 (17%) from the middle age group, and 61(20%) from the old age group experienced fatigue. The existence of a correlation between age group and fatigue was significant (p value <0.05, CI 95%) but not between gender and fatigue.
Conclusion: More than half of the participants had characteristic symptoms with significant fatigue. Aside from that, we demonstrated that physical fatigue outnumbers mental and pandemic fatigue.

Keywords: COVID-19; post-COVID-19 syndrome; Fatigue; pandemic fatigue; physical fatigue; mental fatigue; chalder fatigue scale; pandemic fatigue scale; survey; prevalence

INTRODUCTION

The coronavirus has a detrimental effect on everyone's standard of life and financial burden in addition to their bodily and mental well-being. The COVID-19 virus kept mutating after the initial wave to create new variants. Shortness of breath emerged as the primary symptom of the second wave of COVID-19 symptoms as a result. (1). Then, followed by the third wave of COVID, which is currently in trend. Symptoms of this wave include fatigue, sore throat, hoarse voice, cough, runny nose, headache, muscular discomfort, fever, sneezing, and so on. During these COVID waves, acute symptoms progressively emerged and lasted 7–10 days.

Evidence showed that the COVID-19 infection had long-term physical and mental health repercussions, as well as issues that lasted longer than 6 months (2). It was referred to as the post-COVID syndrome.

The post-COVID syndrome is defined as a syndrome in which patients suffer from long-term symptoms for weeks or months, impairing their everyday activities, involvement in social activities, quality of life, functioning, and dependence level. The most prevalent and important symptom experienced by post-COVID patients is fatigue, which predominates over all other symptoms (3). In post-COVID patients, evidence points to fatigue as the most prevalent symptom, with 64% (3 months), 54% (6 months), and 60% (12 months). At 1 to 3 months, the prevalence of fatigue in hospitalized patients is roughly 52%–70%. Previous COVID waves revealed that around 44%–69.6% of COVID-19 patients complained of fatigue as a clinical symptom (4).

People with co-morbid conditions, chronic physical ailments, sedentary lifestyles, psychological discomfort, and other variables that affect their quality of life tend to experience fatigue more frequently. Generalized clinical signs of fatigue include physical fatigue and mental fatigue. While mental weariness is described as having trouble focusing and carrying out cognitive tasks, physical fatigue is defined as having trouble finishing active physical activity. Exhaustion, the desire to rest, sleepiness, trouble completing chores, a drop in energy, loss of muscle strength, and a feeling of weakness are just a few signs of physical tiredness. On the other hand, mental weariness manifests as symptoms like difficulty focusing, lack of focus the ability to think critically, and poor memory. Aside from physical and mental fatigue, people can feel pandemic fatigue. According to WHO, pandemic fatigue occurs when fatigue is caused by an epidemic danger and fades once the pandemic is over (5). Pandemic fatigue may be defined as both physical and mental exhaustion, as well as boredom caused by overexposure to pandemic-related material that disrupts daily activities.

Since COVID is a more recent deadly illness, the general public lacks a thorough understanding of COVID, its long-term symptoms, and its course of treatment. The majority of COVID research has concentrated on death rates, whereas data on morbidity are relatively scarce. Numerous types of research excluded aspects related to mental health in favor of physical aspects. To determine the prevalence and association of physical and mental weariness among post-COVID patients, a questionnaire study was conducted.

METHOD AND MATERIALS

Study design

A survey from February 2022 to October 2022. The inclusion criteria for the study were participants of Odisha natives who were medically diagnosed with COVID during 3rd wave, aged above 18 years and good understanding of language English. To determine the effectiveness and the amount of time needed to complete the questionnaire, pilot research was carried out. The Likert scale was used to score the questionnaire.

Chalder fatigue scale

The Chalder fatigue scale is used to assess physical and mental exhaustion. The questions in the questionnaire are non-threatening, and the global score can be differentiated into two categories, i.e., physical fatigue (measured by items 1–7) and mental fatigue (measured by items 8–11). The scale has a global score of a total of 33 as well as scores that can be sub-grouped as physical (0–21) and mental fatigue (0–12). The responses are measured on a Likert scale (0–3), where 0 is better than usual, 1 is no worse than usual, 2 is worse or more than usual, and

3 is much more than usual. The reliability coefficient of the scale is very high, ranging from 0.90 on the Likert scale to 6.

Pandemic Fatigue Scale

The Pandemic Fatigue Scale was used to analyze the level of pandemic fatigue. The scale represents the general expression regarding the COVID-19 pandemic, which is further sub-grouped into two groups, i.e., one consisting of three items that deal with demotivation or neglect during the pandemic and related information. The other three items present deal with the boredom related to the pandemic and its information. The scale used the Likert type scale for measuring the response that started from 1(strongly disagree) to 7(strongly agree). The scale provided a good reliability value of 0.86(7).

PROCEDURE

Following clearance from the institutional committee, a questionnaire to investigate the prevalence of fatigue in post-COVID inhabitants of Odisha was developed. Along with the patient's consent and demographic information, the questionnaire also included two measures for measuring degrees of physical, mental, and pandemic exhaustion (the Chalder fatigue scale and the Pandemic fatigue scale). An expert panel of eminent physical therapy faculty members from the institution helped to determine the validity of the questionnaire. Then, local PHCs, towns, and individuals with medical prescriptions were contacted for information on post-covid patients. This study involved an online as well as an offline survey hosted on Google Form, a web-based survey tool. The survey was opened on March 01, 2022, and the final response was completed on July 31, 2022.

Data analysis:

The IBM Statistical Package for Social Science (SPSS) application, version 26.0, Microsoft Excel, and Tableau were used for data aggregation and analysis. Using chi-square tests, the correlation analysis was performed.

RESULTS

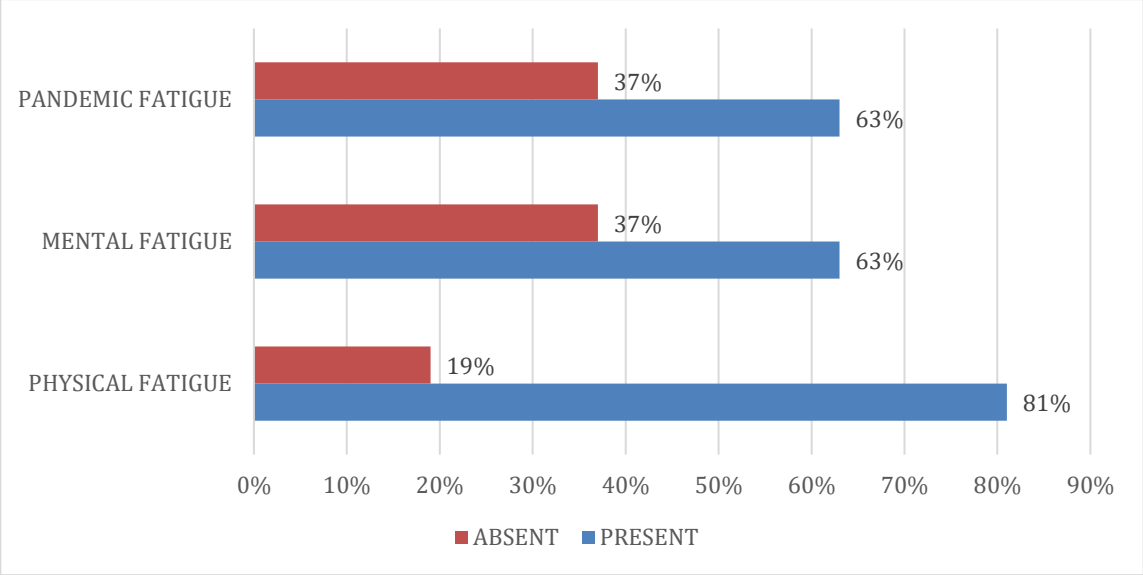
According to this study, data was collected from all over Odisha during the third wave of COVID. Among them, about 20.8% were affected in December 2021, 32.5% in January 2022, 20.3% in February 2022, and 19.9% in March 2022. The data reflected that 51.7% were residents of Odisha, whereas about 47.5% were currently staying in ODISHA during the 3rd wave of COVID. After analyzing the basic information using Microsoft Excel, the prevalence of generalized fatigue among the collected data (n = 307) was found to be 213 (69%).

248 (81%) of the subjects were experiencing the physical fatigue.193 (63%) of the subjects were experiencing the mental fatigue.193 (63%) of the subjects were experiencing pandemic fatigue as represented in figure below.

The correlation between the age group and fatigue was assessed by using the chi-square test in SPSS Statistics V22. The findings revealed the existence of a link between age group and fatigue. It was found significant (p value<0.05, CI 95%), which is represented in Table-1.

Table-1

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	23.844[a]	2	.000
Likelihood Ratio	27.322	2	.000
Linear-by-Linear Association	23.728	1	.000
N of Valid Cases	307		



DISCUSSION

COVID-19 is the third extremely pathogenic human coronavirus illness to be discovered so far. The epidemic has already lasted more than a year, and it appears likely that this new virus will find a home in humans and remain with us for an extended period of time. Though the mortality was somehow restricted by the arrival of vaccines, the morbidity still continued [8,9]. Vijay Kumar Jain et al. explained that in India, during the first wave the symptoms were only confined to respiratory involvement with less breathlessness, whereas during the second wave, the symptoms included the newer gastrointestinal symptoms along with more breathlessness. COVID-19 survivors had partial recovery months after the initial sickness, a condition known as "Post COVID," which was more prevalent during subsequent waves of COVID. They have a significant influence on patients' quality of life (QoL), employment involvement, day-to-day routines, and physical health [10].

Approximately 50% of patients do not fully recover from the symptoms or primary illness, and 31% do not return to work as a result of this persistent symptom. According to César Fernández-de-las-Peas et al., based on the relapsing/remitting nature of post-COVID symptoms, the following integrative categorization is proposed: possibly infection-related symptoms (up to 4-5 weeks), acute post-COVID symptoms (week 5 to week 12), lengthy post-COVID symptoms (week 12 to week 24), and persistent post-COVID symptoms (lasting more than 24 weeks)[11]. Even in moderate instances, symptoms remain, and infection outcomes include fatigue, breathlessness, tachycardia, muscle loss, and reduced functional capacity. Maarten Van Herck et al. stated in their study that severe fatigue is common in individuals with post-COVID between three and six months just after onset. Furthermore, patients endure both physical and psychological fatigue. There is relatively little literature available that specifically examines the occurrence of post-covid syndrome, its symptoms, which are primarily fatigue, the change in fatigue severity over time, and the types of people that are affected by it in the Indian subjects. To the best of the knowledge, this may be the first study to investigate the prevalence of fatigue in post-COVID patients with confirmed COVID-19 in Odisha, utilizing a validated and standardized questionnaire with numerous fatigue measurement scales to identify fatigue.

Our survey was conducted among the post-COVID subjects of Odisha with confirmed COVID both online and offline during the third wave of COVID, in which about 307 confirmed subjects were scanned from about 400 responses, including the inclusion and exclusion criteria. Our study revealed that 69% of the subjects possessed fatigue as the most prevalent post-COVID symptom. There was physical fatigue of about 81% and mental fatigue as well as pandemic fatigue of about 63%, indicating the prevalence of physical fatigue more in the subjects. In our study, we discovered that approximately 58% of the female subjects was affected, rather than the male subjects. Siyun Zou et al. found out that about 47.1% of people were affected by fatigue among clinically stable older psychiatric patients [(12)]. Btissame Zarrouq et al. did a web survey among the Moroccan subjects during the first wave and concluded that 32.0% were experiencing severe physical fatigue and 26.0% were experiencing mental fatigue, suggesting more prevailing physical fatigue among the Moroccan subjects, which was more associated with females. Dominik Menges et al. conducted a cohort study which indicated that 55% of respondents reported fatigue issues [(13)]. Liam Townsend et al. also confirmed in their study that fatigue has been the most prevailing post-covid symptom with a prevalence of 52.3%, mostly observed in the female subjects (54%). Maarten Van Herck et al. in the study express that fatigue is highly prevalent and about 82.8% of the subjects was female. Sanaz Shanbehzadeh et al. in the scoping review mentioned fatigue prevailing during post COVID ranged from 28% to 87%, resulting in reductions in physical performance, routine care, and daily activities and decreased physical capability. And also, female patients and those admitted to intensive care units reported more fatigue [(14)]. According to our findings, the prevalence of fatigue was 63% in the young age group, 17% in the middle age group, and 20% in the old age group. The female subjects were disproportionately impacted, and the younger age groups were notably more prominent. The prevalence of diabetes mellitus was shown to be greater in the post-COVID subjects. There was a substantial relationship discovered between fatigue and age groups. According to the data, there is a considerable association between fatigue and age group. But there is a lack of significance in the correlation with gender. However, our study also has a few limitations. There was no pre-COVID-19 baseline evaluation of individuals' physical and mental health. Because the questionnaire was not in Odia language, we were unable to ascertain whether or not the larger community of COVID victims had been contacted.

Because the patients' current medical status was unknown, it may have had some impact on the current findings in addition to the self-reported symptoms. We were unable to record the intensity of each individual symptom with the basic evaluation of the existence of persistent symptoms; we could only determine whether patients were having symptoms. Future studies can concentrate on the outlook, potential causes, and therapeutic approaches for physical and mental fatigue in COVID patients by drawing on the results from our study. It is therefore essential to allocate resources and organize healthcare services in a timely manner to meet the requirements of patients suffering with post-COVID syndrome. These findings should be utilized to inform care techniques for recovering patients and allow for prompt intervention to reduce the effects of fatigue. Proper exercise prescription and treatment protocols can be established to heal physical as well as mental fatigue among the post-COVID subjects.

CONCLUSION

This is the initial description of post-COVID fatigue among ODISHA residents who have survived the acute period of COVID-19

disease. In our study, we observed that COVID-19 seems to bring about significant fatigue symptoms. More than half of the participants in our research had characteristic symptoms with significant fatigue. Aside from that, we demonstrated that physical fatigue outnumbers mental fatigue and pandemic fatigue. The younger age groups were clearly more prevalent, and the female subjects were particularly affected. The post-COVID subjects were shown to have a higher prevalence of diabetes mellitus.

Declarations:

Ethics approval and consent to participate: The study was done at Abhinav Bindra Sports Medicine and Research Institute, Bhubaneswar, Odisha, India. Ethical clearance was taken from the ethical committee of the institute and consent was taken from the participants. The study is not a clinical trial, so no clinical trial registration was done. The participants were aware of all procedures involved in the study and a written consent was taken for the same.

Consent For Publication: The informed written consent form was signed by all the participants before participation in the study and agreed to the publication of the data reports.

Competing Interests: The authors declare that they have no competing interests.

Funding: There was no external funding obtained for this study

Availability of Data and Materials: The data collected and/or analyzed during the study are available with the corresponding author.

Conflict of Interest: Nil.

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How to cite this article: Swati Parija, Aparna Pattnaik, Priyanka Parida. A survey study on the prevalence and correlation of physical and mental fatigue in long COVID patients. *Int J Health Sci Res.* 2024; 14(6):20-26. DOI: *https://doi.org/10.52403/ijhsr.20240604*

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