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Research Article

**STUDY TO EXPLORE PERSISTENT SYMPTOMS IN PATIENTS AFTER  
COVID-19 INFECTION IN THE GENERAL POPULATION OF  
PAKISTAN**<sup>1</sup>Dr. Afaq Ahmad, <sup>2</sup>Dr. Muhammad Shehryar Ahsan, <sup>3</sup>Muhammad Uzair, <sup>4</sup>Asad Riaz,<sup>5</sup>Dr. Humaira Bashir, <sup>6</sup>Dr. Muhammad Faizan<sup>1</sup>PMC 35105-N, Email: [afaqahmmad@gmail.com](mailto:afaqahmmad@gmail.com)<sup>2</sup>PMDC: 118649-P, Email: [shehry951@gmail.com](mailto:shehry951@gmail.com)<sup>3</sup>Medical student, Federal Medical College Islamabad, Email: [drmuhammaduzairofficial@gmail.com](mailto:drmuhammaduzairofficial@gmail.com)<sup>4</sup>PMDC: 720480-03-M, Email: [asadriaz19@gmail.com](mailto:asadriaz19@gmail.com)<sup>5</sup>PMDC: 19952-N, Trainee Registrar Gynae/obs MMTH D.I.KhanEmail: [humairabashir38@gmail.com](mailto:humairabashir38@gmail.com)<sup>6</sup>PMDC: 25498-N, Demonstrator Pharmacology GMC D.I.KhanEmail: [Sherfaizan.faizan@gmail.com](mailto:Sherfaizan.faizan@gmail.com)**Article Received: September 2022 Accepted: September 2022 Published: October 2022****Abstract:***Objectives: To improve the continuity of healthcare and explore the persistent symptoms following Covid 19 recovery**Methods: It was a cross-sectional study, and the patients were recruited by a simple, convenient sampling method. All patients who were at least 18 years of age and met the World Health Organization criteria for cessation of quarantine (no fever for three continuous days, improvement in symptoms, and two negative test results for COVID-19 virus was negative 24 hours apart) were recruited. All the patients included were treated at home. The study was carried out between January 2021 and June 2021 in Islamabad, Pakistan.**The data was collected from the patients through an online standardized questionnaire.**Results: 412 patients were potentially eligible. Twenty-one individuals (5%) refused to participate, and 34 had positive test results. Thus, 357 patients were enrolled. Patients were assessed a mean of 90.6 (SD, 23.5) days after onset of the first COVID-19 symptom, 127 (35.6%) were completely free of any COVID-19-related symptom, while 39.2% had 1 or 2 symptoms and 25.2% had 3 or more symptoms. The mean age was 44.5 (SD, 12.5) years (range, 19-54 years), and 110 (31%) were women. Fatigue, shortness of breath and myalgia were the most common persistent symptoms.**Conclusion: Patients of COVID-19 illness suffer from persistent symptoms even after complete recovery from an acute phase***Corresponding author:****Dr. Afaq Ahmad,**

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**INTRODUCTION:**

Since late December 2019, there has been an outbreak of a novel enveloped RNA betacoronavirus<sup>1</sup> called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This virus causes coronavirus disease 2019 (COVID-19), which has become an ongoing pandemic. The novel coronavirus SARS-CoV-2 is recognized as the seventh member of the Coronaviridae family to infect human beings.<sup>1</sup>

The estimated mortality rate of COVID-19 is lower than that of severe acute respiratory syndrome or Middle East respiratory syndrome. However, the ongoing COVID-19 pandemic is a significant health threat worldwide.

A significant population with coronavirus disease 2019 (COVID-19) presented symptoms in Pakistan. Common symptoms include cough, fever, shortness of breath, musculoskeletal symptoms (myalgia, joint pain, and fatigue), gastrointestinal symptoms, and anosmia/dysgeusia.<sup>2</sup> However, there is not much information and evidence on symptoms that persist after recovery from acute COVID-19.

In Pakistan, more than 0.5 million COVID-19 patients have recovered so far, but many still complain of symptoms persisting even after two consecutive negative COVID-19 PCR tests. Persistent symptoms include fatigue, cough, chest pain, body pain, shortness of breath, and many others.

The acute phase of COVID-19 has been the centre of attention for doctors and researchers, but continued monitoring is crucial for long-lasting effects is needed.

**METHOD:**

The study was carried out between January 2021 and June 2021 in Islamabad, Pakistan. It was a cross-sectional study, and the patients were recruited by a simple, convenient sampling method. All patients who were at least 18 years of age and met the World Health Organization criteria for cessation of quarantine (no fever for three successive days, improvement in symptoms, and two negative test

results for COVID-19 virus were negative 24 hours apart) were recruited.<sup>2</sup> All the patients included were treated at home. Those treated in the hospital were excluded. The data was collected from the patients through an online standardized questionnaire. The questionnaire included questions on all clinical characteristics, including past clinical, pharmacological and family history in a structured electronic data collection system. Data on particular symptoms potentially related to COVID-19 were obtained. Patients were asked to recall the symptoms during the acute COVID-19 infection retrospectively and whether that symptoms persisted. More than one symptom could be reported.

The sample size was used using the WHO sample size calculator with 95% confidence level, with an absolute precision of 5% was 384.

The research objective was explained to the patients, and informed consent was taken to use their clinical data for research purposes.

IBM SPSS version 25 was used for statistical analysis.

**RESULTS:**

Four hundred twelve patients were potentially eligible. 21 individuals (5%) refused to participate, and 34 had positive test results. Thus, 357 patients were enrolled. The mean age was 44.5 (SD, 12.5) years (range, 19-54 years), and 110 (31%) were women.

Patients have assessed a mean of 90.6 (SD, 23.5) days after onset of the first COVID-19 symptom, 127 (35.6%) were completely free of any COVID-19–a related symptom, while 39.2% had 1 or 2 symptoms, and 25.2% had three or more symptoms. No patient had a fever or any symptoms of acute COVID-19 infection.

The figure shows that a high number of patients reported fatigue (73.2%), dyspnea (16.4%), joint pain (23.5%) and headache (41.3%) even after their real-time PCR came out negative twice.

**Demographic and Clinical Characteristics (N = 357)**

Characteristics	Value
Age (mean, SD)	44.5 (12.5)
Female sex (No, %)	110 (31%)
Regular physical activity (No, %)	142 (40%)
Hypertension	93 (26%)
Diabetes mellitus type II	27 (7.5%)
Smoking (none, active, former) %	41%, 35%, 24%
Paracetamol taken (%)	98.2%
Azithromycin is taken (%)	67.2%

**Post-acute COVID-19 infection symptoms:**

None (No, %)	127 (35.6%)
One or two (No, %)	140 (39.2%)
Three or more (No, %)	90 (25.2%)

Symptoms	Acute COVID-19 Infection phase	Post-Acute COVID-19 Infection
Fatigue	95.1%	73.2%
Shortness of breath	33.2%	16.4%
Cough	67.5%	32.3%
Myalgia	78.9%	34.2%
Anosmia	27.1%	16.4%
Arthralgia	55.7%	23.5%
Headache	82.8%	41.3%

**DISCUSSION:**

This study found that a high number of COVID-19 patients are suffering from symptoms after the acute phase of COVID-19 illness.

64.6% of the patients reported the persistence of at least one or more symptoms, especially fatigue, cough and shortness of breath.

Gemelli et al. found that in patients who had recovered from COVID-19, 87.4% reported the persistence of at least one symptom, particularly fatigue and dyspnea.<sup>4</sup>

Our study also found that many patients took Azithromycin (an antibiotic). There is no evidence that Azithromycin helps in fighting COVID-19 illness. Antibiotic resistance may rise as a result.

The clinician may follow up with the patients and treat the persisting symptoms, and new guidelines must be formed to help those affected by this deadly virus.

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