

## Post COVID symptoms in Patients of Cumilla district, Bangladesh

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### Abstract:

**Background:** COVID-19 not only takes millions of lives and significant morbidities world wide but also retains significant post COVID symptoms. The COVID-19 pandemic has greatly impacted our psychosocial behaviors due to confinement, social distancing, masks and changes in working condition.

**Objective:** The objective of our study is to evaluate the symptoms of post COVID-19 Patients in Cumilla district, Bangladesh. **Methods:** It was a retro-prospective observational study. All RT-PCR positive patients who tested in RT-PCR lab of Comilla Medical College in 10 days of each month from July to December 2020 were included in this study. 10 days in each month was selected by lottery. Selected patients were interviewed over telephone by the investigator team after getting the verbal consent and their information was recorded accordingly in a preformed data sheet. **Results:** Among 606 COVID-19 RT-PCR

positive patients mean age was  $40.39 \pm 15.42$  years, 62.8% were male. 97.2% recovered and 2.8% died. 33.8% patients suffered from post COVID symptoms. The most common symptoms were fatigue 73 (26.3%), Palpitation 67 (24.1%), muscle pain 24 (11.7%), CNS disturbance including depression 32 (15%), difficulty in breathing 15 (5.9%) and bodyache 13 (4.6%).

**Conclusion:** Post COVID-19 is mainly characterized by musculoskeletal, pulmonary, neurological and digestive involvement including depression. More than one third of patients with COVID-19 report long-term symptoms 3 to 10 months after diagnosis. These data suggest that the post COVID symptoms placed a significant burden on society and especially healthcare systems.

**Keywords:** Post COVID-19 symptoms; Clinical features; Depression.

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### Introduction:

The first confirmed case of COVID 19 in Bangladesh was detected on 8<sup>th</sup> march 2020.<sup>1</sup> Since its origin in late Dec. 2019 in the city of Wuhan, Hubei province, China it has taken millions of lives and resulted in significant morbidities world wide<sup>2</sup>. Acute COVID-19 patients exhibited a wide range of symptoms ranging from minor respiratory symptoms to a severe type of pneumonia requiring mechanical ventilation and finally progressing to acute respiratory distress syndrome or multi-organ failure. Unfortunately, the fight against COVID-19 does not appear to end with the detection and treatment of acute disease. Studies have revealed a high incidence of persistent symptoms after acute infection in 40 to 90% of patients resulting in the term “long COVID-19” or “post COVID-19 syndrome”<sup>3</sup>. Because COVID-19 is a new virus, there is currently no agreement on the definition of post-COVID-19 syndrome. According to the National Institute for Health and Care Excellence (NICE), the Scottish Intercollegiate Guidelines Network (SIGN), and the Royal College of General Practitioners (RCGP), post COVID-19 was defined as “Signs and symptoms that arise during or following an infection compatible with COVID-19 that persist for more than 12 weeks and are not explained by an alternative diagnosis”<sup>4</sup>.

Greenhalgh et al. defined post-COVID syndrome as COVID-19-related disease that lasts longer than 3 weeks after the beginning of symptoms and chronic COVID-19 as symptoms that last longer than 12 weeks after the onset of symptoms<sup>5</sup>. According to Amenta et al., for those who stay in the hospital at 3 weeks following symptom onset the post-acute phase begins when the patient is discharged from inpatient acute therapy<sup>6</sup>. Recently, the University of Cincinnati Medical Center's recommended criteria for COVID-19 sequelae; they divided long COVID-19 syndrome into five categories based on the initial symptoms, onset time, length of symptoms, and period of quiescence<sup>7</sup>. People with post-COVID-19 syndrome continued to experience one or more symptom such as generalized discomfort, exhaustion, persistently high temperature, and psychological issues. These symptoms do not just impact people who have had a bad case of the disease but can also affect people with mild course of the disease. Since the data of people experiencing long COVID-19 symptoms is still unclear<sup>8</sup>. Some emerging evidence showed that COVID-19 survivors are experiencing medium and long term problems. An Italian study of 143 individuals who had been followed up seven weeks after discharge found that 53% have fatigue, 43% with breathlessness, and 27% having joint pain<sup>9</sup>. Similar types of clinical complication were also reported in pathogenic SARS and MERS coronavirus infected patients. Post-COVID complications like post-traumatic stress disorder (PTSD), anxiety, sleepiness, and stress were also observed among the recovered individuals from SARS and MERS<sup>10</sup>. Long-term glucometabolic, cardiopulmonary, and neuropsychiatric problems have been reported following infections with coronavirus<sup>11</sup>. Patients with diabetes, chronic obstructive pulmonary disease (COPD), cardiovascular diseases (CVD), malignancies, hypertension, and other comorbidities are the most susceptible to COVID-19 life-threatening situations<sup>12</sup>. An epidemiological study in Bangladesh found that the recovered individuals experienced some short-term outcomes, including pains and aches (31.8%), anxiety or depression (23.1%) and weakened attention span (24.4%)<sup>13</sup>. Much leaking of post COVID symptoms data encourage us to do this study. This study was conducted in our medical college hospital aiming to analyze the long term persistent symptoms in post COVID-19 patients through a comprehensive and structured clinical assessment and evaluating the incidence. We evaluate details post COVID symptoms and also outcome of COVID-19. These data may modify patient's management and influence public health vaccination strategies by identifying additional

population groups that should be prioritized.

**Methods:**

**Study design:** It was a single center, Retro-prospective follow up study.

**Place of study:** Comilla Medical College, Cumilla.

**Sampling technique:**

All RT-PCR positive patients who tested in RT-PCR lab of Comilla Medical College in 10 days of each month from July to December 2020 were included in this study. 10 days in each month was selected by lottery. Selected patients were interviewed over telephone after getting the verbal consent and their information was recorded accordingly in a preformed data sheet.

**Period of study:** February- June 2021. 05 months

**Data Collection:**

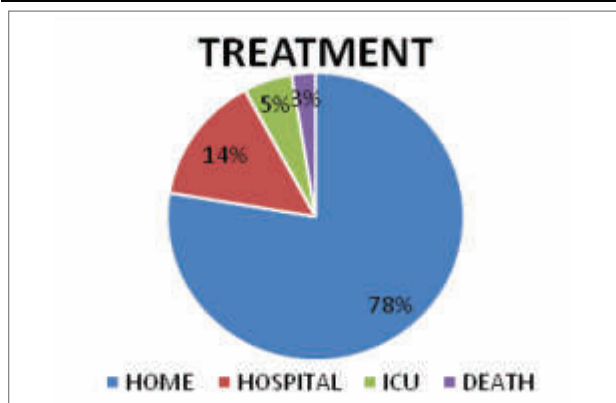
Name and mobile number of the RT-PCR positive COVID 19 patients was collected from the data registry of Comilla Medical College RT-PCR lab from 1st July 2020 to 31st December, 2020. Data was collected by contacting the patients over telephone after taking proper consent from the patients or legal guardian of the patients according to a structured questionnaire. Prior to the study, proper ethical approval was obtained from ethical review committee of Comilla Medical College. The demographic data included age, sex, occupation, time and place from illness onset to outcome, co-morbidities (systemic hypertension, diabetes mellitus, heart disease, cerebro-vascular disease, bronchial asthma and chronic obstructive pulmonary disease, etc.) and details post COVID symptoms were collected through the questionnaire. Outcome was designed as complete recovery, post COVID symptoms or death. All collected data was recorded in structured case record form and later on accumulated and compiled. The statistical analysis is done by the Statistical Package for Social Sciences version 25.0 for Windows. Test of significance was performed by unpaired t-test for quantitative variable and Chi square test for qualitative variables compared separately in different clinical presentation.

**Results:**

Among 606 RT-PCR positive CoV-19 patients 381(62.8 %) were male and 225 (37.2%) female, mean age was  $40.39 \pm 15.42$ . Most of the patients were in 31-40 years age group. 307 (50.7%) population were from urban. Family members were affected 41.6% and Only 105 (17.3%) of patients had a positive history of contact with COVID 19 patients.

**Table-I: Base line characteristics of study population (N=606)**

Variable	Number	Percentage (%)
<b>Sex</b>		
Male	381	62.8
Female	225	37.2
<b>Agein years (Mean - 40.39 ± 15.42)</b>		
21-30	112	18.4
31-40	150	24.7
41-50	131	21.6
51-60	101	16.7
61-70	41	6.8
>70	15	2.6
<b>Occupation</b>		
Service	204	33.6
Business	81	13.3
Agriculture	10	1.6
Healthcare worker	41	6.8
Student	67	11
Housewife	152	25
Others	51	8.4
<b>Resident</b>		
Rural	299	49.3
Urban	307	50.7
<b>Family member affected</b>		
Yes	251	41.6
None	355	58.6
<b>History of contact with COVID-19 patient</b>		
Yes	105	17.3
No	501	82.7



**Fig-1: Distribution of COVID-19 cases according to treatment (N=606)**

**Table-II: Outcome of COVID-19 cases**

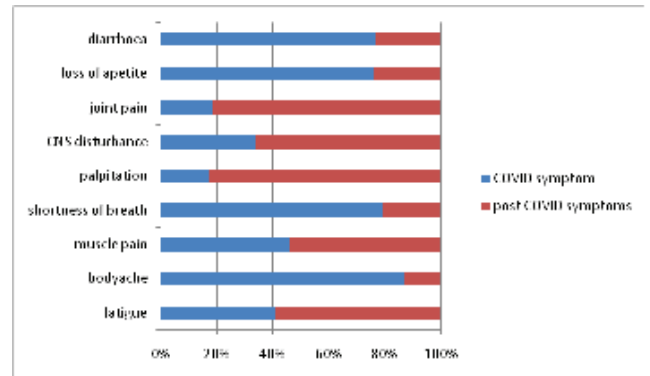
Outcome	Frequency	Percent
Recovered	584	96.3
Referred to higher center	5	0.8
Death	17	2.8

**Post COVID symptoms: 33.8% patients suffering from post COVID symptoms.**

**Table-III: Post COVID symptoms of the patients**

Post COVID symptom	Frequency	Percent
None	401	66.2
Yes	205	33.8
Difficulty in breathing	15	5.9
Fatigue	73	26.3
Bodyache	13	4.6
Muscle pain	24	11.7
Joint pain	11	5.4
Depression	2	0.7
Headache	17	6.1
Chest pain	7	2.5
Sleep disturbance	16	5.7
Loss of smell	8	2.9
Loss of test	4	1.4
Palpitation	67	24.1
Intermittent fever	3	1.1
Rash	1	0.4
Impaired memory	3	1.1
Inability to concentrate	4	1.4
Psychosis	2	0.7
Diarrhoea	7	2.5

**Death after COVID-19: 4 patients were died after post COVID stage.**



**Figure-2: COVID-19 Symptoms and post COVID symptoms**

**Discussion:**

This retro-prospective study included a total of 606 SARS-CoV-2 positive cases from July to December, 2020. Mean age was Mean  $40.39 \pm 15.42$  years. Majority (45.3%) of the patients were aged between 31 to 50 years. This is consistent with the data from the Institute of Epidemiology, Disease Control and Research (IEDCR)<sup>14</sup>, Bangladesh on COVID-19. 65.3% male and 34.7% female, matched that of Asia, China (median age: 47 years; 41.9% female)<sup>15</sup>, India (mean age 40.3 years, 66.7% male)<sup>16</sup> and other reports from Bangladesh.<sup>17</sup> Death rate 17 out of 606 (2.8%) is higher in respect to WHO reported Case Fatality Rate of Bangladesh, which is 1.36% on 2 June, 2020. Causes remain old age (4 cases were > 70 years), comorbidities, terminal cases are commonly referred to this reputed tertiary care referral hospital. A significant amount of patients (33.8%) were suffering from post COVID symptoms. The most common symptom was fatigue 73 (26.3%), Palpitation 67 (24.1%), muscle pain 24 (11.7%), CNS disturbance 32 (15%), difficulty in breathing 15 (5.9%), bodyache 13 (4.6%). This type and prevalence of long-lasting symptoms in COVID-19 positive are consistent with the existing literature. Two studies, evaluating more than 100 laboratory confirmed COVID-19 outpatients, reported the prevalence of symptoms lasting more than 6 months after diagnosis: 33–46% participants with at least one symptom, 14–22% with fatigue, 8% with dyspnea, and 14–15% with change in sense of smell or taste<sup>18,19</sup>. Musculoskeletal, respiratory and neurological symptoms including depression were the most frequent observed in our post COVID patients. Arthralgia and fatigue were the two more frequent acute clinical manifestations persisting during the post COVID state. Our results were consistent with the meta-analysis in which fatigue/muscle weakness, dyspnea, pain and discomfort, anxiety/depression and impaired concentration were presented in more than 20% of patients. Noteworthy, post COVID symptom was independent of severity of acute illness and the humoral response to RBD SARS-CoV-2. The causes of post COVID symptoms are under study, however the main hypotheses include a persisting chronic inflammatory process, an autoimmune phenomenon or even a hormonal imbalance as a consequence of an alteration in the hypothalamic-pituitary-adrenal axis<sup>20</sup>. The COVID-19 pandemic has greatly impacted our psychosocial behaviors due to confinement, social distancing, masks, and changes in working condition. Some symptoms may be a consequence of these unprecedented changes<sup>21</sup>.

**Conclusion:**

More than one third of patients with COVID-19 reported long-term symptoms 3 to 10 months after diagnosis. These data suggest that the post- COVID syndrome places a significant burden on society and especially healthcare systems. There is an urgent need to inform physicians and political authorities about the natural long-term course of COVID-19 in order to plan an appropriate and dedicated management of those with disabling persistent symptoms.

**Limitation:**

Our study has certain limitations. First, most symptoms are subjective and prone to observer bias. Symptoms may also come from an intercurrent condition at the time of COVID-19 diagnosis and not always represent sequelae of SARS-CoV-2 infection. Second it is a single centered study, for more information, multi centered study should be done.

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