Research Article

Characteristics of Long COVID Symptoms of People Affected by COVID-19 living at Dhaka Division, Bangladesh

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Abstract

Background: The objective of this study was to identify the Characteristics of long COVID symptom and explore the relation among long COVID symptoms and socio demographic variables and explore the level of impact on people's life due to long COVID symptoms.

Method: A prospective survey was undertaken of cross-sectional study to confirmed people living with and affected by long COVID (aged 18–87 years). 294 participants were recruited from across Dhaka Division, Bangladesh. All participants had a previously confirmed positive COVID-19 diagnosis and passes at least 12 weeks are reported persistent symptoms and difficulties in performing daily activities. Participants who consented were contacted by face-to-face interview. MBPI and MBFI scale were used to measure the severity of pain and fatigue.

Result: Among 294 participants, the prevalence of long COVID symptoms at 12 weeks was 15.6%. Association in between gender and modified brief fatigue inventory are noticed. Female are more probability to effected than male to fatigue. Also, association in between comorbidities and modified brief pain inventory are noticed. Who has more co-morbidities, he/ she is riskier to affected by long COVID pain symptom.

Conclusion: In general, from this study can be concluded that the current understanding of long COVID, a relatively new and puzzling condition that may affect COVID-19 survivors, regardless of initial disease severity or age. In this study, the prevalence of long COVID symptoms was describes in this study. Also describes the characteristics of the symptom and association with age, sex and co-morbidities.

Keywords: COVID-19; Long COVID; Post-COVID-19 syndrome; Characteristics; Symptom; MBPI; MBFI

Introduction

Corona virus disease (COVID-19) is an infectious disease caused by the Sars Cov-2 virus. It was first diagnosed in December 2019 in Wuhan, China. The lack of pre-virus immunity had resulted in an exponential growth in infected people globally, making the pandemic one of the most serious health threats humanity had faced in the previous century [1]. In March 2020, the coronavirus was discovered to have spread to Bangladesh. The country's Institute of Epidemiology, Disease Control, and Research (IEDCR) reported the first three cases on March 8, 2020 [2]. Since then, the pandemic had spread over the entire country, with the number of persons affected steadily increasing day by day. A part of Dhaka division that connects the Dhaka-

Aricha (N5) National and Prominent Highway where the first coronavirus case was confirmed on April 14, 2020 [3].

Research reveals the creation of a new illness termed as 'long COVID/Post COVID-19 syndrome,' which describes a wide range of symptoms that linger after a COVID-19 infection has been identified [4]. NICE has issued new guidance that defines post-COVID-19 syndrome as signs and symptoms that appear during or after a COVID-19 infection and last for more than 12 weeks and cannot be explained by another diagnosis. According to the case report, these symptoms might impact any system in the body and fluctuate over time. The term 'long COVID-19' is used to describe both symptomatic COVID-19 (from 4 to 12 weeks) and post-COVID-19 syndrome individuals (12 weeks or more) [5]. Between 10% and 20% of COVID-19 patients with symptomatic acute COVID-19 will progress to a persistence phase of clinical manifestations lasting more than one month [6], with chronic symptoms such as fatigue, post-exertional malaise, dyspnea, headache, and many other neurocognitive conditions such as brain fog, inability to perform daily physical tasks [7].

Materials and Method

A cross-sectional descriptive research was performed using structured questionnaires with those who tested positive for COVID-19. This study design was ideal for determining the objectives. Data were collected from Dhaka Division, Bangladesh. Sample were selected using convenience sample technique to interview the study population considering the inclusion and exclusion criteria. For this research, 294 people served as the sample size. All of the COVID-19 patients who were chosen for this study and met the inclusion criteria. In this study, the study population were COVID-19 survivors in Dhaka division, Bangladesh after diagnosis COVID-19 on Rt-pcr test and have ongoing symptoms. Data collection procedure were included by face to face with structured questionnaire interview using a closed-ended question. After data was collected, Data were analyzed with the software named Statistical Package for Social Science (SPSS) version 22.0 and Microsoft Excel 2019. Inclusion and exclusion criteria were used to determine the final sample. patients with laboratory confirmed COVID-19 and passes 12 weeks after confirmation at Dhaka city, Bangladesh were eligible for participation [8]. Age- 15-85 years and less than 18 years children are included with the written concern of parents to co relate symptom severity with children. The study complied with all applicable ethical guidelines and World Health Organization (WHO) standards. All participants were made aware of their right to discontinue involvement in the study at any moment the results of this research will aid in determining the prevalence of long COVID symptoms and the modified Brief Pain Inventory Scale and the modified brief fatigue inventory scale were used to find out association

between sociodemographic variables by performing fisher exact test.

Result

In thus Study 294 participants were taken to determine the characteristics of long COVID-19 Symptoms after diagnosis of people living at Dhaka Division, Bangladesh. Among them from whom data were collected the lowest age was 15 and highest age was more than 85 years. Among all participants 60 .2% (n=177) were Male and 39.8 % (n=117) were female in this study. About 34.7% (n=102) participants were living in rural, 54.8%(n=161) were living in semi urban area and 10.5% (n=31) participants were living in urban area (Table-1).

Table 1: Socio-Demographical data of all Participants.

Variable		N	%
Age	18 or less then 18	15	5.1
	19 to 27	64	21.8
	28 to 36	87	29.6
	37 to 45	49	16.7
	46 to 54	34	11.6
	55 to 63	35	11.9
	64 or more then 64	10	3.4
Gender of the participants	Male	177	60.2
	female	117	39.8
Educational status of the Participants	No formal education	6	2
	primary education	50	17
	secondary education	63	21.4
	higher secondary education	98	33.3
	bachelor or above	77	26.2
Living area	Rural	102	34.7
	semi urban	161	54.8
	urban	31	10.5

Among 294 participants about 30.30% participants has at least one Co-morbidity and other 69.70% participants had no Co-morbidity. Among the positive Co-morbidity participants, 7 participants had heart disease,40 participants had high blood pressure, 11 participants had lung disease, 38 participants had diabetes, 1 participant had anaemia, 1 participant had depression, 44 participants had osteoarthritis, 71 participants had backpain, and 1 participant had rheumatoid arthritis. (Figure-1).

Among the 294 COVID-19 diagnosis patients 15.60% patients has at least one symptom after passes at least 12 weeks from the date of diagnosis. (Figure-2).

Among those long COVID patients 2.20 % had Cough, 69.60% had Fatigue, 10.9% had Headache, 15.2% had Shortness of breathing, 8.7 % had Anorexia, 2.2% had Dizziness, 13 % had anosmia, 41.30% had Body pain and 15.20% had other symptoms. (Figure-3).

In Fisher exact test association in between Age group and Modified Brief Pain Inventory Questionnaire showing
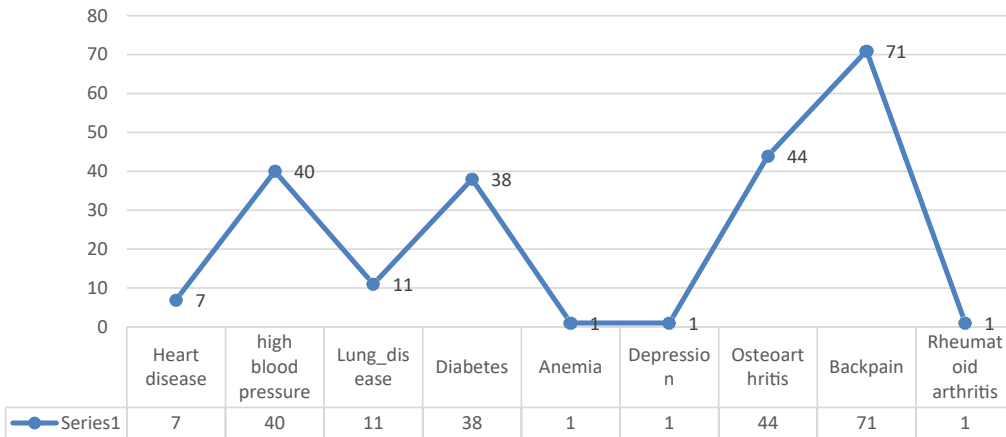
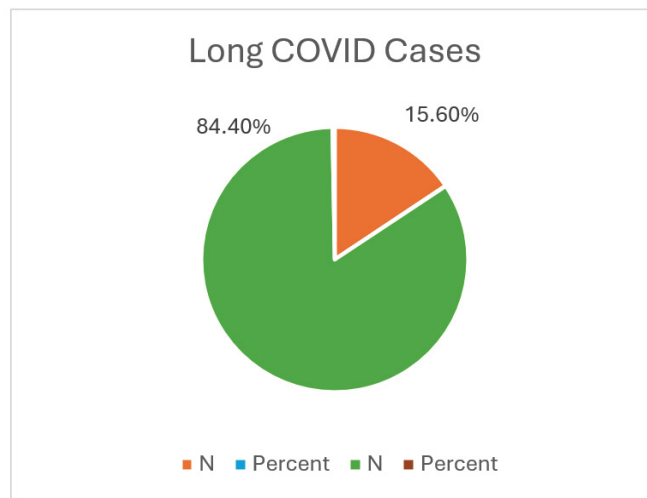**Figure 1:** Status of self-administered Co-morbidity Questionnaire.

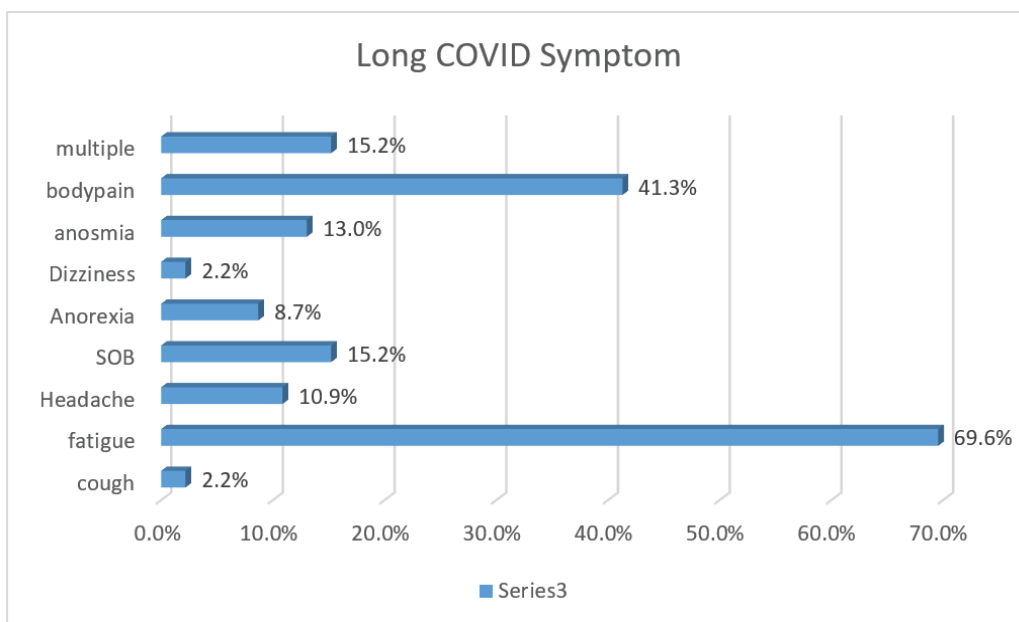**Figure 2:** Status of Long COVID Cases.

Figure 3: Long COVID Symptoms.

that their p value higher than 0.05. So, all are insignificant. Also, association in between Age group and Modified Brief fatigue Inventory Questionnaire showing that their p value higher than 0.05. That means there is no relation between them. But The table shows Correlations between sex and Co-morbidities with MBPI and MBFI Scale. In Fisher Exact test shows that there is a relation of sex and Co-morbidities with pain and Fatigue.

Table 2: Association of MBPI and MBFI Scale with Socio-Demographical data of Participants.

	FET Value	P value
Association between age category and mean pain severity	8.383	0.696
Association between age category and pain interfered with general activity during past 24 hours	14.118	0.14
Association between age category and pain interfered with mood during past 24 hours	13.224	0.416
Association between age category and pain interfered with sleep during past 24 hours	15.977	0.068
Association between age category and mean fatigue severity	15.465	0.162
Association between age category and fatigue interfered with general activity during past 24 hours	14.464	0.182
Association between age category fatigue interfered with mood during past 24 hours	13.948	0.186
Association between age category and fatigue interfered with sleep during past 24 hours	16.7	0.081
Association between Sex of the participant and mean pain severity	6.899	.0223*
Association between Sex of the participant and pain interfered with general activity during past 24 hours	7.545	.014*
Association between Sex of the participant and pain interfered with mood during past 24 hours	7.43	.014*
Association between Sex of the participant and pain interfered with sleep during past 24 hours	4.993	0.062
Association between Sex of the participant and mean fatigue severity	12.482	0.002**
Association between Sex of the participant and fatigue interfered with general activity during past 24 hours	11.514	0.002**
Association between Sex of the participant and fatigue interfered with mood during past 24 hours	12.317	0.001***
Association between Sex of the participant and fatigue interfered with sleep during past 24 hours	17.737	0.001***
Association in between Co-morbidities and mean pain severity	14.697	0.026*
Association in between Co-morbidities and pain interfered with general activity during past 24 hours	19.448	0.004**
Association in between Co-morbidities and pain interfered with mood during past 24 hours	14.471	0.050*
Association in between Co-morbidities and Pain interfered with sleep during past 24 hours	19.448	0.004**
Association in between Co-morbidities and mean fatigue severity	16.344	0.079
Association in between Co-morbidities and fatigue interfered with general activity during past 24 hours	8.995	0.305
Association in between Co-morbidities and fatigue interfered with mood during past 24 hours	12.85	0.071
Association in between Co-morbidities and fatigue interfered with sleep during past 24 hours	12.634	0.094

Here, P<0.05=*, P<0.01=** and P<0.001=***

Discussion

The present study used a cross-sectional design to find out the characteristics of long COVID Symptoms after diagnosis COVID-19 disease of people living at Dhaka division, Bangladesh. In this study, the prevalence of long COVID symptoms was 15.6%. This is slightly lower than that reported by another study of the overall Bangladesh. which reported the prevalence of long COVID symptoms as 16.1 % [9]. After 12 weeks Among the long COVID patients 2.20 % had Cough, 69.60% had Fatigue, 10.9% had Headache, 15.2% had Shortness of breathing, 8.7 % had Anorexia, 2.2% had Dizziness, 13 % had anosmia, 41.30% had Body pain, and 15.20% had other symptoms. This is also similar to other study of long COVID in Bangladesh. A Systematic review conducted with a comprehensive search including formal databases, COVID-19 or SARS-CoV-2 data sources, grey literature, and manual search. This study included 25 observational studies with moderate to high methodological quality, considering 5440 participants. The frequency of long COVID-19 ranged from 4.7% to 80%, and the most prevalent signs/symptoms were chest pain (up to

89%), fatigue (up to 65%), dyspnea (up to 61%), and cough and sputum production (up to 59%). Temporal criteria used to define long COVID-19 varied from 3 to 24 weeks after acute phase or hospital discharge [10,11]. In fisher exact test we found there was relation in gender and Co-morbidity with long COVID symptoms. Female were more fatigue than male and the patients who had Co-morbidity had more chance to affected in long COVID. This study has several limitations, including a relatively small sample size and performed in a short time, thus all factors related to long COVID may not have been emphasized. If there was adequate time, the scope of this project may be expanded. Future research in this area should aim for larger, more diverse cohorts and consider longitudinal follow-up to better understand the trajectory of Long COVID symptoms.

Conclusion

Assuming at least 10% of COVID-19 survivors develop long COVID, which is likely underestimated, it is estimated that 5 million people are facing long COVID globally. From this study can be concluded that the current understanding of long COVID, a relatively new and puzzling condition that may affect COVID-19 survivors, regardless of initial disease severity or age. In this study we identified the prevalence of long COVID. The severity of symptoms and their co-relation have been discussed. In addition, the study identified some COVID related information like severity, medication status, vaccination status, Socio demographic status and Co-morbidity. The information presented in this review, which has not been communicated extensively elsewhere in the literature, may serve as a starting point for further exploration on long COVID. Evidently, the pandemic has brought us a wave of a new chronic, disabling condition called long COVID that deserves serious attention among the scientific and medical communities to resolve.

Author Contributions:

➤ **Tamzid Hossain**

GROUP 1: Conception of the work, Acquisition and Analysis of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

GROUP 4: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Conflicts of Interest: No conflict of interest

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