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Original Research Article

Prevalence and pattern of post COVID-19 health problems among adults attending post COVID-19 clinics of selected tertiary care centres in Kolkata

Uma Rani Adhikari*, Manju Patra

[1]Department of Nursing, Government College of Nursing, Burdwan Medical College and Hospital, Purba Bardhhaman, P.O. Rajbati, West Bengal, India
[2]Department of Nursing, Sanjiban College of Nursing, Sanjiban Hospital, Howrah, West Bengal, India

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***Correspondence:**
Dr. Uma Rani Adhikari,
E-mail: umaadhikari1975@gmail.com

ABSTRACT

Background: Post COVID-19 health problem is the persistence of signs and symptoms that develop during or after COVID-19 infection for more than 12 weeks and are not explained by an alternative diagnosis. This study aimed to determine the prevalence and pattern of post COVID-19 health problems in adults of post COVID -19.
Methods: A descriptive cross-sectional survey was conducted in post COVID-19 clinic of two tertiary care government sectors in Kolkata. Data collected through pre tested interview schedule and record analysis from the patients with COVID-19 positive through SARS-Cov-19, RT-PCR positive or rapid antigen positive test. Data collected from 150 post COVID-19 patients after ethics committee approval. All data were analysed using SPSS version 19.
Results: More than 3/4th of the participants (77.3%) had reported post COVID-19 health problems and majority (43.3%) of the subjects had fatigue, 30% of the subjects had joint pain 28.67% of the subjects had cough. Majority (65.1%) of the subjects had mild illness during their COVID-19 infected period and 25% had other health problems among them maximum (40%) of the subjects had interrupted sleep, 28% of the subjects had uncomfortable in walking and (6%) of the patients had depression. Less common health problems were hematuria (4%), blurred vision (4%) and anosmia (4%). 21.5% participants reported ≥7 post COVID-19 health problems among all participants.
Conclusions: The present study reveals that the commonest health problems in post COVID-19 patients were fatigue, headache, joint pain, shortness of breath. Comprehensive rehabilitation program and monitoring is essential for management.

Keywords: Post COVID-19 clinic, Post COVID-19 health problems, Prevalence

INTRODUCTION

Post COVID-19 symptoms occur in individuals with a history of probable or confirmed SARS- CoV-2 infection, usually 12 to 16 weeks from the onset of COVID-19 with symptoms which last for more than weeks and cannot be explained by alternative diagnosis. Fatigues, shortness of breath, cough, pain in the chest, disturbance in thinking, are generally common manifestations. Symptoms could also be a new onset following current recovery from an acute COVID-19 episode or persist from the illness.[1]

According to the Centre for Disease Control and Prevention, post COVID 19 conditions are a wide range of new, returning, or on-going health problems that people can experience for more than 4 weeks after initially being infected with the virus that causes COVID-19. Asymptomatic patients may also have post COVID-

19 conditions. Different types of health problems which may involve multisystem illnesses that may vary length of time and clinical manifestations differ between patients to patients over time. Follow up of patients who recovered showed that one or more symptoms persist in a substantial percentage of people, even weeks or months after COVID-19.[2-5]

Very few studies conducted in Indian socio-cultural context regarding post COVID-19 health problems but we have seen clinical manifestations and post COVID-19 health problems differ from different cultural, socio-economic and ethnic background. Hence identification of post COVID-19 health problem is very important in this population which will help in the understanding of epidemiology of the disease and epidemiology of post COVID-19 too.

METHODS

This descriptive survey research was conducted after getting institutional ethics committee approval (MC/KOL/IEC/NOV-SPON/1113/06/2021 dt. 12.06.21) and written consent was obtained from all the participants included in the study. Administrative approval was obtained from the institute head before data collection.

Inclusion criteria

Patients who were coming for post COVID-19 clinic in two tertiary care government centers and tested positive for COVID-19 (SARS-Cov-19, RT-PCR positive or rapid antigen positive test) were included in the study.

These two government institutions were the dedicated government COVID hospital in Kolkata where all COVID-19 patients from government sector usually come for follow up.

Exclusion criteria

The study excluded post COVID-19 patient with a history of psychiatric illnesses and other serious illness. Data collected through semi-structured interview schedule which was developed on the basis of national guidelines on post COVID-19 health problems and record analysis was used for comorbidities, illness profile and treatment profile.[6] Tools were validated and tested for reliability before data collection. Data collected from 07 February 2022 to 05 March 2022 from 150 post COVID-19 infected adult patients. The confidentiality of participants was maintained throughout the study. In this study, prevalence refers to the number of post COVID-19 patients suffering from different health problems at a particular time. Health problem refers to the problems arising among post COVID-19 patient due to infection by SARS-COV-2 virus. Health problems which people experience more than four weeks after first being infected with the virus COVID-19 and symptoms (fatigue, chest pain, headache, palpitation, joint pain, shortness of breath, fear,) that develop after COVID-19 infections those were not there previously.

Statistical analysis

All data were entered in MS Excel and analyzed using SPSS version 19.0 (IBM Corp, Armonk, NY) statistical software. Statistical significance was set as a two-sided $p<0.05$.

RESULTS

Table 1 depicts that 50% participants belonging to the age group 18-30 years suffered from post COVID-19 health problem after COVID-19 infection. Out of all male and female participants >77% male and female suffering from post-COVID-19 health problems. Approximately, 82.82% participants suffering from post-COVID health problem were educated up to higher secondary and above. 80% participants who suffered from post COVID-19 health problems were working through offline. More than half of the study participants (54%) were vaccinated and 88.8% participants who were never smoker also had post COVID-19 health problem. The analysis revealed significant associations between post COVID-19 health problem and age, vaccination status and smoking status (Table 1).

The analysis further depicts that place of COVID-19 treatment, administration of O_2 during COVID-19 treatments, administration of steroid therapy during COVID-19 treatments, administration of antiviral and antibiotics during COVID-19 treatment were associated with post COVID-19 health problems (Table 2).

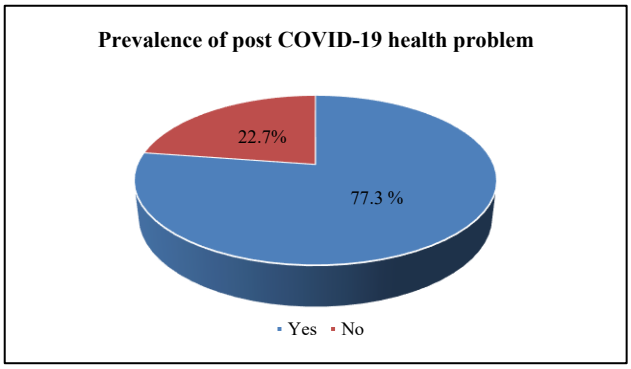

Figure 1: Pie diagram showing prevalence of post COVID-19 health problem among study participants.

More than 3/4th of the participants (77.3%) had reported post COVID-19 health problems (Figure 1). The most common health problem included fatigue (49%), joint pain (30%) and cough (28.67%) (Figure 3A-C). Less common health problems were hematuria (4%), blurred vision (4%) and anosmia (4%) (Figure 3B and C). 21.5% participants reported ≥7 post COVID-19 health problems among all participants who suffered from post COVID-19 health problems.

Table 1: Sociodemographic profile of post COVID-19 patients (n =150).

Characteristics	Post COVID-19 health problem			P value
	Yes (%)	No (%)	Total	
Age				
18-30	16(50)	16 (50)	32 (100)	1.000
31-45	28 (73.7)	10 (26.3)	38 (100)	0.0035
46-60	32 (80)	8 (20)	40 (100)	0.0001
≥61	40 (81.6)	9 (18.4)	49(100)	<0.0001
Sex				
Male	65 (77.38)	19 (22.61)	84 (100)	<0.0001
Female	51(77.27)	15(22.72)	66 (100)	<0.0001
Education status				
Primary	7 (58.3)	5 (41.7)	12 (100)	0.5653
Secondary	27 (69.2)	12 (30.76)	39 (100)	0.1071
Higher secondary and above	82 (82.82)	17(27.17)	99 (100)	<0.0001
Working pattern				
Online	12(66.6)	6 (33.3)	18 (100)	0.159
Offline	80(80)	20 (20)	122 (100)	<0.0001
Not working	24 (75)	8 (25)	32 (100)	<0.0003
Vaccination status				
Vaccinated	70 (85.36)	12(14.63)	82(100)	<0.0001
Unvaccinated	46(67.64)	22(32.35)	68(100)	0.0036
Smokers				
Current smoker	20(57.1)	12 (42.9)	22 (100)	0.5054
Past smokers	56(76.71)	17(23.28)	73(100)	<0.0001
Never smoked	40 (88.8)	5 (12.5)	45(100)	<0.0001
Alcohol consumption				
No	55 (80.8)	13 (19.11)	68 (100)	<0.0001
Yes	61 (74.39)	21 (25.60)	82 (100)	<0.0001

Table 2: Details of previous COVID-19 infection of the participants (n=150).

Characteristics	Post COVID-19 health problem			P value
	Yes (%)	No (%)	Total	
COVID severity				
Asymptomatic	5 (71.4)	2 (28.6)	7 (100)	0.257
Mild	75 (77.3)	22 (22.7)	97 (100)	P< 0.0001
Moderate	24 (82.7)	5 (17.3)	29 (100)	0.0004
Severe	12 (70.6)	5 (29.4)	17 (100)	0.089
Place of COVID-19 treatment				
Home isolation	32 (74.4)	11 (25.6)	43 (100)	0.0014
Hospital admission	72 (67.3)	13 (32.7)	107 (100)	0.0003
ICU admission	12(54.5)	10 (45.5)	22 (100)	0.673
Administered O_2				
Yes				
Invasive ventilation	30 (60)	20 (40)	50 (100)	0.157
Non-invasive ventilation	52 (78.9)	14 (21.1)	66 (100)	P<0.0001
Administered steroid				
Yes	22 (73.3)	8 (26.7)	30 (100)	0.011
Administered antiviral				
Yes	44 (80)	11 (20)	55 (100)	P<0.0001
Administered antibiotics				
Yes	116 (77.3)	34 (22.7)	150 (100)	P<0.0001
Administered anticoagulant				
Yes	20 (66.7)	10 (33.3)	30 (100)	0.067

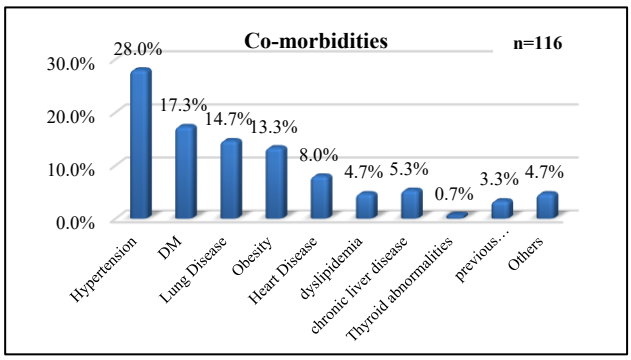

Figure 2: Bar diagram showing co-morbidities suffered from the participants having health problems.

N.B. Data in figure -2 are not mutually exclusive.

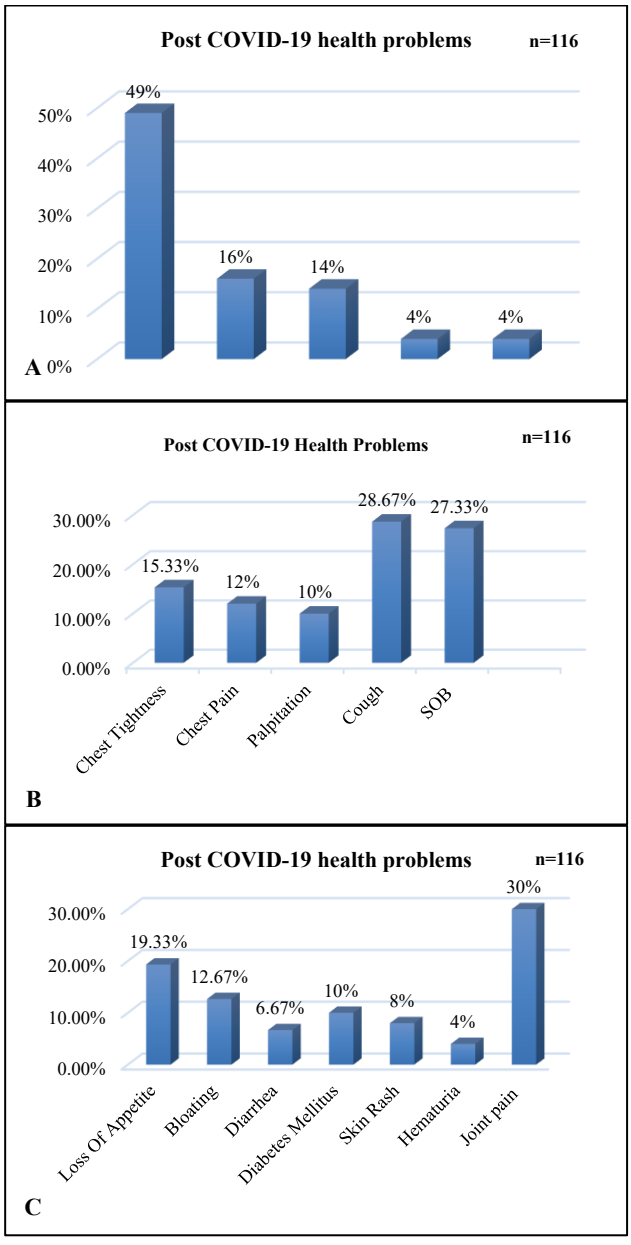

Figure 3 (A-C): Pattern of post COVID-19 health problems.

Table 3: Distribution of study participants on the basis of number of post COVID-19 health problems (n=116).

Number of health problem	No. of patients	Percentage
1-3	43	37.1
4-6	48	41.4
≥ 7	25	21.5

DISCUSSION

In the present study, the prevalence of post COVID-19 health problem was too high (77.3%). This study also revealed that 41.37% of the subjects suffered (4-6) health problems, 37.06% of the subjects had (1-3) health problems and 21.5% participants reported ≥7 post COVID-19 health problems among all participants who suffered from post COVID-19 health problems. The findings corroborate with research by Huang et al and Bhatnagar et al studies that is approximately 68% of participants reported at least one post COVID-19 symptoms and a significant proportion of the participants (79.7%) experienced post-Covid symptoms.[7,8] In contrast, study by Naik et al in 2021 showed post COVID-19 signs and symptoms in northern population and they revealed 9.9% of participants reported symptoms 12 weeks following COVID-19 infection.[1] This discrepancy may be attributed to larger sample size, differences in socio-demographic characteristics, and the SARS-COV 2 delta variant's characteristics during the research period, difference in study design and differences in definition of post COVID-19 health problems etc.

Regarding the number of health problems, our study findings supported by Grant et al study where 55% subjects had 3 or more health problems and 32% of the subjects had (1-3) health problems.[9]

In the present study, 77.33% study participants had at least one or more comorbidities (Figure 2). This finding is not consistent with a study by Bhatnagar et al and Menges et al study where they reported that only 25.2% and 34% participants had at least one comorbidity at base line.[8,10] This discrepancy because of different study setting as our study conducted at post COVID-19 clinic where as Bhatnagar et al study conducted at community setting.[8] Our study revealed that 28% study participants had hypertension and 17.3% had diabetes mellitus as co-morbidities. Study by Cioboata et al in 2022 reported 36% participants as HTN and 14.52% as having diabetes.[11] This discrepancy may be because of different socioeconomic characteristics of study participants.

The present study reported that 49.33% of the subjects had fatigue as a post COVID-19 health problem and it was the commonest health problems followed by joint pain (30%). The least common health problems reported by our respondents were hematuria (4%), blurred vision (4%) and anosmia (4%) etc. This finding is consistent

with a study conducted Perez et al where 34.8% subjects had fatigue and 17.8% of the subjects had headache.[12] On contrary, another study conducted by Kamal et al showed that fatigue and headache were the common post COVID symptoms but it ranges from (72.8%) to (30%) and joint pain (30%) related to musculoskeletal system.[13] Study conducted by Carfi et al showed that 21.7% of the subjects had chest pain and 31.4% subjects had joint pain which is also consistent to our study findings.[14] A study by Siddhant and Prithivi et al reported 11.3% respondents had persistent anosmia as a post COVID-19 symptoms and least post COVID-19 symptoms were rash and discoloration 2.6%.[15] So least common symptoms were different from study to study.

A major strength of our study is the confirmation of positive SARS-COV-2 via RT-PCR testing and the data collected in post COVID clinic. So, participants reported their actual health problem. This study is limited to a small number of sample size.

CONCLUSION

In our study the most common post-COVID-19 symptoms were fatigue (49%), joint pain (30%) and cough (28.67%). Follow up study was recommended to know the long-term effects of COVID-19 to understand how to treat and prevent post COVID-19 health problems.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee (MC/KOL/IEC/NON-SPON/1113/06/2021 dated 12/06/2021)

REFERENCES

1. Naik S, Haldar SN, Soneja M, Mundadan NG, Garg P, Mittal A, et al. Post COVID-19 sequelae: a prospective observational study from northern India. Drug Discov Ther. 2021;15:254-60.
2. CDC. Post COVID Conditions. 2022. Available from: https://archive.cdc.gov/www_cdc_gov/coronavirus/2019-ncov/long-term-effects/index.html. Accessed on 8 May 2024.
3. Raveendran AV, Jayadevan R, Sashidharan S. Long COVID: an overview. In: Diabetes and Metabolic Syndrome: Clinical Research and Reviews. Vol. 15. Elsevier Ltd; 2021:869-875.
4. Expanding our understanding of post COVID 19 condition: Report of a WHO webinar 9 February 2021. Available from: https://www.who.int/publications/i/item/9789240025035. Accessed on 8 May 2024.
5. Kabi A, Mohanty A, Mohanty AP, Kumar S, Anand A. Post COVID-19 syndrome: a literature review. J Adv Med Med Res. 2020;32:289-95.
6. National Comprehensive Guidelines for Management of Post-COVID sequelae, Ministry of Health and Family Welfare, Government of India. Accessed on 29.08.2021. Available from: https://covid19dashboard.mohfw.gov.in/pdf/NationalComprehensiveGuidelinesforManagementofPostCovidSequelae.pdf. Accessed on 8 May 2024.
7. Huang L, Yao Q, Gu X, Wang Q, Ren L, Wang Y, et al. 1-Year outcomes in hospital survivors with COVID-19: a longitudinal cohort study. Lancet. 2021;398:747-58.
8. Bhatnagar N, Singh MM, Sharma H, Mishra S, Singh G, Rao S, et al. Prevalence and patterns of post-COVID-19 symptoms in recovered patients of Delhi, India: a population-based study. Osong Public Health Res Perspect. 2024;15(3):229-37.
9. Grant MC, Geoghegan L, Arbyn M, Mohammed Z McGuinness L, Clarke EL, et al. The prevalence of symptoms in 24410 adults infected by the novel corona virus (SARS-CoV-2; COVID-19): a systematic review and meta-analysis of 148 studies from 9 countries. PloS one. 2020;15(6):e0234765.
10. Menges D, Ballouz T, Anagnostopoulos A, Aschmann HE, Domenghino A, Fehr JS, et al. Burden of post-COVID-19 syndrome and implications for healthcare service planning: a population-based cohort study. PLoS One. 2021;16:e0254523.
11. Cioboata R, Nicolosu D, Streba CT, Vasile CM, Olteanu M, Nemes A, et al. post-COVID-19 syndrome based on disease form and associated comorbidities. Diagnostics. 2022;12(10):2502.
12. Moreno-Pérez O, Merino E, Leon-Ramirez JM, Andres M, Ramos JM, Arenas-Jiménez J, et al. Post-acute COVID-19 syndrome. Incidence and risk factors: a Mediterranean cohort study. J Infect. 2021;82(3):378-83.
13. Kamal M, Abo Omirah M, Hussein A, Saeed H. Assessment and characterisation of post-COVID-19 manifestations. Int J Clin Pract. 2021;75(3):e13746.
14. Carfi A, Bernabei R, Landi F, Gemelli. Against COVID-19 post-acute care study group, persistent symptoms in patients after acute COVID-19. JAMA. 2020;324(6):603-5.
15. Siddhant S, Prithvi S. Post-covid symptoms and its relationship between patients age and gender. Exp Clin Med Georgia. 2022;2.

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