

Symptoms and psychosocial effects following hospitalization for Covid-19: A sequential, mixed-methods study from northern India

SAGAR KHERA, MANMEET KAUR, RUPINDER KAUR, ABHISHEK SHARMA, RITIN MOHINDRA, VIKAS SURI, P.V.M. LAKSHMI, ROOP KISHOR SONI, ASHISH BHALLA, SHUBH MOHAN SINGH

ABSTRACT

Background. It is reported that patients who have recovered from Covid-19 continue to experience various symptoms and adverse outcomes. However, this aspect has not been studied well. We aimed to evaluate these variables and the perceived impact of Covid-19 among patients discharged from a Covid hospital in northern India.

Methods. We conducted this study among patients discharged from a Covid-19 hospital in northern India in June 2020. As per the official policy at that time, patients detected to have Covid-19 (symptomatically or via contact tracing) were mandatorily admitted. A sequential, mixed-methods design was followed. Patients discharged from the hospital were contacted telephonically, and the cross-sectional prevalence of symptoms, the prevalence of depression and anxiety and the social consequences of admission were assessed. A subgroup of patients was interviewed for qualitative assessment of their experience.

Results. A total of 274 patients provided consent and were assessed, of which 8 patients underwent detailed interviews. The prevalence of somatic symptoms was 3.4%; 36.2% of the patients had depressive and 12% of the patients had anxiety symptoms. A majority of patients experienced adverse social and economic consequences of hospitalization for Covid-19. These themes were reinforced by a qualitative analysis of in-depth interviews.

Conclusions. Our study population experienced a high prevalence of adverse psychosocial consequences of Covid-19. These included depression and anxiety symptoms,

stigma and economic and occupational consequences. These deserve more recognition and study.

Natl Med J India 2022;35:210–14

INTRODUCTION

The Covid-19 pandemic has affected all parts of the world. Millions of people have been infected, and a majority have recovered from the infection. The recovered patients are expected to be asymptomatic and re-integrate into society. However, data suggest that at least some patients continue to experience symptoms.^{1,2} In addition, these patients continue to suffer from stigma at the hands of members of their family and society.³

Given the public health value of possible persistent symptoms, the psychosocial impact of Covid-19 and considering the potential numbers involved, it is important to study the prevalence and typology of these symptoms and other outcomes. This study was designed as a preliminary investigation into the cross-sectional physical, psychological and social status of patients following discharge from a Covid hospital in northern India using a mixed-methods approach.

METHODS

The protocol for this sequential, mixed-methods study was approved by the institutional review board, and informed consent was obtained from all participants.

Setting

This study was conducted among patients who were discharged from a 300-bedded, government-run Covid hospital, which is a part of a tertiary teaching hospital in northern India. This Covid hospital is situated in a stand-alone building at some distance from the main hospital. This study was conducted in the month of June 2020 by which time 274 patients had been discharged from the hospital following recovery as per the guidelines issued by the Government of India.⁴ The first patients in the Covid hospital were admitted in the last week of March 2020. At this time, all patients with confirmed Covid-19 irrespective of clinical status were mandatorily admitted in the Covid hospital. The patients admitted in the Covid hospital were usually detected by contact tracing of known patients at that stage of the pandemic. A majority of patients were healthcare workers who were infected at the workplace and some were from a local

Post Graduate Institute of Medical Education and Research,
Chandigarh 160012, India

SAGAR KHERA, RITIN MOHINDRA, VIKAS SURI,
ASHISH BHALLA Department of Internal Medicine
MANMEET KAUR, RUPINDER KAUR, ABHISHEK SHARMA
Department of Community Medicine

P.V.M. LAKSHMI Department of Epidemiology
ROOP KISHOR SONI Department of Internal Medicine
SHUBH MOHAN SINGH Department of Psychiatry

Correspondence to SAGAR KHERA; sagar77khera@gmail.com

[To cite: Khera S, Kaur M, Kaur R, Sharma A, Mohindra R, Suri V, *et al.* Symptoms and psychosocial effects following hospitalization for Covid-19: A sequential, mixed-methods study from northern India. *Natl Med J India* 2022;35:210–14.]

outbreak in an urban slum. Furthermore, due to the nationwide lockdown, a majority of the highly sick patients from remote areas could not access the hospital. Thus, the study population represents the majority of patients who were likely to have been asymptomatic or mildly symptomatic.

Participants

The study population for the present study was chosen as described above. There was a possible over-representation of patients with mild symptoms or asymptomatic presentations, given the government policy of mandatory admission and case finding based on contact tracing rather than the severity of illness. The sample size was estimated assuming that 50% (p) of the patients would have some or the other residual or persistent symptoms, at 95% of CI and sampling error of 5% and known population size of 274 patients (n), who were discharged from the hospital till June 2020. We arrived at a sample size of 161 for the quantitative arm of the study. For the qualitative arm, using purposive sampling, 8 participants were selected for in-depth interviews.

Instruments

The participants were assessed using a sociodemographic profile sheet. Since no standardized questionnaire was available, we designed a brief questionnaire to assess (i) the clinical profile, which involved questions about perceived symptoms, known comorbid conditions and their current status; (ii) the health profile, which included questions about the existence of known residual symptoms of Covid infection; and (iii) any underlying known comorbid conditions and aggravation of comorbid conditions due to Covid based on the study purpose. The domains of social/interpersonal relationship and economic condition post-Covid were assessed after performing modifications in the available standardized tools that are used for assessment of concern, care and interaction at the household level by relatives, community members, workplace contacts and service providers with regard to patients with HIV. The modifications to this tool were used to assess whether the status of having Covid affected their earning capacity or job prospects. We assessed the cross-sectional depressive and anxiety symptoms using the Hindi versions of the Patient Health Questionnaire-9 (PHQ-9) and the Generalized Anxiety Disorder scale-7 (GAD-7).^{5,6} These scales are designed to be self-administered but have been administered telephonically also.⁷ We also assessed the social, economic and occupational impact of hospitalization. This involved questions about the perceived impact of Covid-19 hospitalization on social relations in the family, neighbourhood and society and questions about its impact on economic parameters. These items were in the form of questions such as 'Do you feel that after discharge from hospital, your family members avoid interacting with you?' The responses to these questions were in the form of 'yes/no'.

Procedure

A recovered patient was defined as someone who had been discharged from the Covid hospital. A list of discharged patients (as per the date of discharge) was obtained on 1 June 2020. Thereafter, in the same month, one of the authors sequentially, telephonically contacted all the patients starting from the earliest date of discharge, explained the purpose of the study, clarified any doubts, obtained consent and administered the series of questions to patients who had provided consent.

Consent for an interview in minor patients was obtained from one of the parents. The interviews were conducted in the Hindi language. Data were analysed using appropriate statistical tests.

Patients who were willing to be interviewed in more depth were taken up for the qualitative arm of the study. The qualitative arm consisted of in-depth interviews conducted by a trained field staff regarding the social and economic impact of hospitalization for Covid-19. Interviews were audio-recorded. These transcripts were then analysed, patterns were coded and themes were identified.⁸ The interviewees were informed about the schedule and time before the in-depth interview, to avoid any distractions and to maintain the flow of the interview.

Transcription errors were avoided by ensuring that the recording equipment was fully functional and the interviews were conducted in a noise-free environment. We covered two groups: <40 and \geq 40 years of age. Three men and 5 women were interviewed based on the non-probability purposive sampling. At this point, thematic saturation was achieved. The thematic analysis was conducted by the anthropologist and sociologist among the authors. The Grounded theory was used to conduct thematic analysis to uncover change in social relationships and behaviours of people towards the recovered patients.⁹ Theoretical underpinning focused on the levels of perceived threat of the pandemic disease and belief in the effectiveness of measures adopted to protect against it.¹⁰ All the impressions of the qualitative part of the study were based on the interviews. Thus, the assessment was carried out from immediately after discharge to about 2 months post-discharge across the whole group.

RESULTS

Of the 230 patients approached, 174 participants consented to take part in the study (Table I). None of the patients had required intubation. The age range of the participants was 14–75 years. The profile of pre-existing comorbid conditions was as follows: 6 were persons with diabetes mellitus (4 men and 2 women), 5 with both diabetes and hypertension (2 men and 3 women), 12 with hypertension (3 men and 9 women) and 1 woman was diagnosed with chronic obstructive pulmonary disease (total 12). Fifteen patients (62.5%) of those with pre-existing comorbid conditions reported that the control of the disease had deteriorated following hospitalization.

Of the 6 patients who complained of persistent residual symptoms, 4 each had persistent cough and generalized body weakness (all women), 1 woman had shortness of breath, and 1 man had altered bowel habits. Three of the 6 patients had more than one symptom (50%). The mean age of the patients with symptoms (5 women and 1 man) was 35 years. One patient was 75 years old and if she were excluded, the mean age was 27 years. The responses to the questions regarding the social impact, economic and occupational impact are given in Table II.

The qualitative part of the study revealed the following themes:

1. *Experience of testing.* A majority of the respondents reported that on the day they were diagnosed positive, they had a fear in mind as they knew little about the disease, and watching news channels had already instilled fear in their minds. They were also distressed about sharing the news of their positive status with family members and others (fearing stigma). Moreover, Asymptomatic patients were surprised with the

TABLE I. Sociodemographic and clinical details of the study population

Variable	Men	Women	p value	Total
<i>n</i> (%)	90 (51.7)	84 (48.3)		174
Mean (SD) age in years	35.80 (13.9)	35.32 (13.4)	0.81*	35.57 (13.70)
Married, <i>n</i> (%)	63 (70)	59 (70.2)	0.85	122 (70.1)
At least completed schooling, <i>n</i> (%)	52 (57.7)	43 (51.2)	0.15	95 (54.6)
Pre-existing comorbid condition	9 (9.9)	15 (17.9)	0.26	24 (13.79)
Self-perceived residual symptoms, <i>n</i> (%)	1 (1.1)	5 (6)	0.18	6 (3.4)
<i>Patient Health Questionnaire-9 (PHQ-9) category</i>				
Mild (5–9)	27 (30.0)	29 (34.5)	0.72	56 (32.2)
Moderate (10–14)	3 (3.3)	3 (3.6)		6 (3.4)
Moderately severe (>14)	1 (1.1)	0		1 (0.6)
<i>Generalized Anxiety Disorder scale-7 (GAD-7) category</i>				
Mild	10 (11.1)	9 (10.7)	0.99	19 (10.9)
Severe	1 (1.1)	1 (1.2)		2 (1.1)

* *t*-test, all others Chi-square test p value significant <0.05

TABLE II. Responses of the study population with regard to social, economic and occupational consequences of Covid-19

Social, economic and occupational consequences of Covid-19	<i>n</i> (%) of respondents replying 'yes'
<i>Have the family members in your household (%)</i>	
— become more concerned and caring?	119 (68.4)
— tended to avoid interaction?	7 (4)
<i>Have your relatives (%)</i>	
— become more concerned and caring?	90 (51.7)
— tended to avoid interaction?	109 (62.6)
<i>Have people in your local community/neighbourhood (%)</i>	
— become more concerned and caring?	39 (22.4)
— tended to avoid interaction?	134 (77)
<i>Have people in your workplace (%)</i>	
— become more concerned and caring?	55 (31.6)
— tended to avoid interaction?	94 (54)
<i>Have your healthcare providers (%)</i>	
— become more concerned and caring?	49 (28.2)
— tended to avoid interaction?	95 (54.6)
<i>Do you think that Covid-positive status has (%)</i>	
— affected your earning capacity?	110 (63.2)
— led to uncertainty about future?	85 (48.9)

positive report and were rather sceptical of the authorities that they were isolated without any reason. Patients were not aware about the asymptomatic condition of the viral disease and thought that they were healthy but were instead forcefully isolated by the authorities. The knowledge gap regarding Covid-19 played a major role in shaping the attitude of individuals. For instance, one patient said: 'I felt nothing because I had no fever, but was afraid when I came to know about being positive', another said: 'I was afraid earlier, we don't have much knowledge about this infection and, after watching news, I was thinking that people are dying and no one would survive.'

2. *Communication of test result.* News of the test result was often shared with family members or in some cases family members were informed about the report, which was then further conveyed to the patient. Support of family is of utmost importance in such situations as it helped most respondents to come to terms with the news. Most respondents were satisfied by this. One patient reported: 'My father received a phone call from the hospital regarding my positive report and he informed me about the same. I was very anxious, but he was a calming influence.'
3. *Experience at Covid-19 hospitals was not satisfactory for*

most patients. A majority of patients complained about the poor state of hygiene at the centres and were distressed with the number of patients kept in a common place. Although patients admitted to the PGIMER centre were satisfied with the facilities and diet provided, patients who were admitted in other centres were not happy with the facilities. They also complained about the non-availability of proper care by doctors. One of the respondents reported that she suffered urinary tract infection during her treatment at the Covid centre because of the poor hygienic conditions. She said: 'The Covid care centre where they kept us was not at all good, only one toilet was available that too in very bad condition; there I suffered from urinary infection.'

4. *Caring attitude of the family members.* Family members have become more caring towards the recovered patients, and none of the respondents reported being ignored or neglected by the family members. Special focus was given to dietary requirements. A patient reported the importance of family support. She said: 'My husband was always caring; my son was also positive. My husband cared a lot for both of us and supported us. Because of this I was more comfortable knowing that my husband was there, no matter what.'

5. *Change in the attitude of neighbours (stigma and discrimination).* A majority of respondents were of the view that they have faced stigmatizing behaviour from neighbours and did not experience any major change in the behaviour of family members and friends. Recovered patients generally avoided going out or meeting people and maintained safe distance from others. Few respondents reported that people were keeping distance while talking, but they found it normal as it kept both of them safe; however, this behaviour can be classified as stigmatizing as there is deliberate avoidance of other individuals. Fear of infection and lack of knowledge among the common masses drive stigmatizing behaviour. Even after recovery, patients experienced a sense of avoidance from individuals known to them whenever they went to the marketplace. One of the recovered patients was heckled by a neighbour in the market and asked not to go out as they had suffered from Covid-19 infection; this signifies the level of stigma people are facing in general. For instance, one of the respondents said: 'After recovery when I was in the market, one of the neighbours told us that you should not get out of your house. I said, "We have recovered from this, we have antibodies inside our body, we are not at risk now, you should worry about yourself".'
6. *Stigma related to coverage in newspapers and electronic media.* A majority of respondents were worried about reports published in newspapers and electronic media as most of the individuals did not want to share their Covid-19-positive status with others fearing stigma and discrimination. The respondents even confirmed that our study would not publish their personal details in the newspaper. In one particular case, a picture of the patient with director of the hospital was published in a leading newspaper, which led to various episodes of stigma and discrimination faced by the recovered patient. She said: 'My picture with the director was published in a leading newspaper, through which many people came to know about my positive status and behaved differently.'
7. *Issues faced at the workplace.* All those who are involved in the government sector did not face any issue with the employment; however, their colleagues at work became more caring towards them and kept a safe distance. People involved in private jobs and businesses were already suffering due to the lockdown, and family members of the patients were asked by the employers not to come to work for at least 14 days, which further added to their financial worries. They also faced stigma after re-joining work as most of the people in office avoided interaction with them. A patient who worked in a shop reported: 'My employer asked me not to come to the shop for at least a month. I was worried about losing my job. It was finally a great relief that I was retained. Some of my friends lost their jobs and are still unemployed.'
8. *Fear of Covid-19 after recovery.* All the recovered patients were satisfied with experiences they are having post-Covid-19, as most of the respondents reported that their life has changed for the better, now they don't fear Covid-19, which haunted them before getting infected. One said: 'There was an atmosphere of fear, but after recovering it seems that things were not so bad as it was projected; now things are normal, and we don't feel any kind of fear.'

assessing the short-term (up to 2 months) status of patients who have been discharged from a Covid hospital. As already mentioned, most of the patients were asymptomatic or mildly symptomatic.

Our results suggest that symptomatic outcome in this cohort of patients was favourable, with a few patients reporting any persistent somatic or cognitive symptoms. This is unlike reports that have suggested that a majority of patients with more serious Covid symptoms during the acute infection continue to experience a variety of somatic and cognitive symptoms.² A couple of other studies assessing patients with severe Covid-19 (requiring oxygen) have reported persistent disability as well.^{11,12} Our cohort reported experiencing mild-to-moderate depressive and anxiety symptoms. Our study also reveals that patients continue to experience stigmatization and avoidance in the community and financial worry and uncertainty about the future. Taken together, it seems that at least in the short term, persistent post-Covid somatic and cognitive symptoms are a function of the severity of the acute Covid-19 episode (dose-response), rather than more obscure or idiosyncratic patterns of causation.

Considering the results of the qualitative arm of the study and the questions assessing the interpersonal, social and financial aspects of hospitalization, it is likely that these symptoms were associated with the psychosocial stressors of the infection and hospitalization.

Although a majority of the recovered patients were satisfied with the post-Covid-19 life, they still face stigma and discrimination in one form or the other, such as neighbours maintaining distance from them, avoidance and refusal of employment (in the private sector). They also face financial worries and uncertainty as a result of loss of employment and enforced isolation that keeps them away from usual economic activity. Our results suggest that people who have had mild Covid-19 continue to suffer from stigma related to the disease and from the financial consequences of loss of earning or employment and limited avenues of employability post-Covid-19. The certainty of isolation at home or in hospital and stigmatization following confirmed Covid-19 is possibly an important reason for the reluctance of most people with mild infections in getting tested even though treatment is usually free in government hospitals. A solution that has been suggested to alleviate some of the suffering associated with isolation in Covid-19 is financial compensation for loss of income.¹³ It is also important to be able to combat stigma associated with Covid-19. For instance, it is well known that most patients are non-infective after about 10 days of the start of symptoms and do not pose any danger to others.¹⁴ However, patients continue to be shunned as shown in our study. Post-Covid stigma and its financial and social consequences may be an important driver of subsequent adverse consequences. Similar phenomena have been reported in Ebola survivors in Africa.¹⁵

The limitations of the study include the cross-sectional and telephonic nature of the follow-up assessment. Cross-sectional assessments mean that future and long-term consequences may be missed. We also did not aim for thematic saturation in the qualitative part of the study. The study group consisted of patients with good prognosis in whom the social and economic consequences were likely to be more important than health-related consequences.

It is estimated that a majority of patients with Covid-19 are either asymptomatic or mildly symptomatic.¹⁶ Given the numbers

DISCUSSION

Our study represents one of the first attempts at systematically

of patients with Covid-19 (confirmed or unconfirmed), this group of patients represent a large number. However, these patients represent a 'blind spot' with regard to management, detection and priority compared to the more severely ill patients.¹⁷ Our study highlights the need for psychosocial rehabilitation of this group of patients. Our study also underlines the importance of undertaking more systematic studies of stigma and the economic and health consequences of Covid-19 across the spectrum of symptomatic severity.

Conflicts of interest. None declared

REFERENCES

- Singh SM, Reddy C. An analysis of self-reported long COVID symptoms on Twitter. *MedRxiv* 2020, doi: <https://doi.org/10.1101/2020.08.14.20175059>.
- Carfi A, Bernabei R, Landi F, for the Gemelli Against COVID-19 Post-Acute Care Study Group. Persistent symptoms in patients after acute COVID-19. *JAMA* 2020;**324**:603–5.
- Bagchi S. Stigma during the COVID-19 pandemic. *Lancet Infect Dis* 2020;**20**:782.
- Revised discharge policy for COVID-19; 2020. Available at www.mohfw.gov.in/pdf/reviseddischargepolicyforcovid19.pdf (accessed on 21 Apr 2020).
- Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med* 2001;**16**:606–13.
- Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: The GAD-7. *Arch Intern Med* 2006;**166**:1092–7.
- Pinto-Meza A, Serrano-Blanco A, Peñarrubia MT, Blanco E, Haro JM. Assessing depression in primary care with the PHQ-9: Can it be carried out over the telephone? *J Gen Intern Med* 2005;**20**:738–42.
- Frommer J. Qualitative research in diagnostic processes. *Psychopathology* 1999;**32**:121–6.
- Strauss A, Corbin JM. *Basics of qualitative research: Grounded theory procedures and techniques*. Thousand Oaks, California, USA: Sage; 1990:270.
- Bish A, Michie S. Demographic and attitudinal determinants of protective behaviours during a pandemic: A review. *Br J Health Psychol* 2010;**15**:797–824.
- Weerahandi H, Hochman KA, Simon E, Blaum C, Chodosh J, Duan E, et al. Post-discharge health status and symptoms in patients with severe COVID-19. *J Gen Intern Med* 2021;**36**:738–45.
- Curci C, Pisano F, Bonacci E, Camozzi DM, Ceravolo C, Bergonzi R, et al. Early rehabilitation in post-acute COVID-19 patients: Data from an Italian COVID-19 rehabilitation unit and proposal of a treatment protocol. A cross-sectional study. *Eur J Phys Rehabil Med* 2020;**56**:636–41.
- Singh SM, Mohindra R, Shouan A. Is it time to consider an income guarantee for the period that patients with COVID-19 spend in isolation: An Indian perspective. *Public Health* 2020;**185**:3.
- CDC. Coronavirus Disease 2019 (COVID-19), Centers for Disease Control and Prevention; 2020. Available at www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html (accessed on 21 Apr 2020).
- Overholt L, Wohl DA, Fischer WA 2nd, Westreich D, Tozay S, Reeves E, et al. Stigma and Ebola survivorship in Liberia: Results from a longitudinal cohort study. *PLoS One* 2018;**13**:e0206595.
- Kim GU, Kim MJ, Ra SH, Lee J, Bae S, Jung J, et al. Clinical characteristics of asymptomatic and symptomatic patients with mild COVID-19. *Clin Microbiol Infect* 2020;**26**:948.e1–3.
- Gandhi M, Yokoe DS, Havlir DV. Asymptomatic transmission, the Achilles' heel of current strategies to control COVID-19. *N Engl J Med* 2020;**382**:2158–60.

Evaluation of satisfaction and reasons for participation in a Covid-19 vaccine clinical trial: A single-centre, observational study

PALVI KUDYAR, DHRUVE SONI, NITHYA J. GOGTAY

ABSTRACT

Background. In May 2020, WHO recognized the role of extensive immunization for interrupting the transmission of the SARS-CoV-2 virus. The development of such vaccines in clinical trials relies upon participants who are expected to

be vested in the research process. Assessment of participant factors such as motivation and satisfaction are hence important to gauge perspective and ensure successful conduct and completion of these trials.

Methods. We administered a validated three-domain questionnaire to and documented the binary categorical responses (yes/no) of participants (after informed consent) who had taken both doses of COVOVAX™ in a phase 3 trial at our institute. Association of the dependent variables (participant responses) with the independent variables (participant demographics and socioeconomic strata) was computed using Chi-square test at 5% significance. In case of a significant association, Bonferroni post-hoc test was applied for multiple comparisons.

First floor, New Building, Seth GS Medical College and KEM Hospital, Acharya Donde Marg, Parel, Mumbai 400012, Maharashtra, India

PALVI KUDYAR, DHRUVE SONI, NITHYA J. GOGTAY
Department of Clinical Pharmacology

Correspondence to NITHYA J. GOGTAY; njgogtay@hotmail.com

[To cite: Kudyar P, Soni D, Gogtay NJ. Evaluation of satisfaction and reasons for participation in a Covid-19 vaccine clinical trial: A single-centre, observational study. *Natl Med J India* 2022;**35**:214–18.]

© The National Medical Journal of India 2022