Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the editor

Rapid screening for psychiatric co-morbidity in patients recovering from Covid-19 infection in a clinic in a low-and middle-income country

1. Introduction

Psychiatric symptoms are frequently encountered in patients with COVID-19 infection [1,2]. Psychosocial (e.g. isolation, stigma, losses, traumatic memories) as well as neurobiological factors (e.g. CNS infection, inflammation, medications) contribute to the increased risk of mental health problems among COVID-19 infected individuals [3,4]. Co-morbid mental health problems can lead to negative outcomes such as delayed recovery from infection, poor quality of life and impaired work performance [1].

There have been studies on mental health problems in patients with acute COVID-19 infection, but limited information is available on mental health issues of recovering COVID-19 patients especially from the non-Western countries. Studies conducted during post-COVID-19 recovery suggest that the prevalence of psychiatric disorders among such patients is higher than that reported for other respiratory tract infections including influenza [5,6]. Taquet et al. reported an incidence of neuropsychiatric morbidity in 19.5% of patients at six months after a diagnosis of COVID-19 [5]. The current study aims to assess the prevalence of post-COVID-19 neuro-psychiatric morbidity using quick screeners in a busy clinic dedicated to COVID-19 patients in India, and to assess the performance characteristics of a panel of screening tests in identifying these conditions.

2. Methods

Consecutive adult (defined as >18 years) patients ($n = 220$) were assessed between June 15, 2021 and July 31, 2021 for psychiatric co-morbidity at a tertiary care multidisciplinary teaching hospital in the Pulmonary Medicine Outpatient Department (PMOD) after recovering from COVID-19. This includes both patients with hospitalisation history as well as those with milder symptoms who were managed in out-patient department. Patients were admitted in various units including the intensive care unit, high dependency unit, pulmonary medicine general ward, internal medicine general ward or seen in PMOD with no hospitalisation requirement. Written informed consent was obtained at their 6-week appointment in the PMOD. A detailed clinical interview was conducted by a psychiatrist, while the patients were waiting for the clinical appointments. Generalised Anxiety Disorder-2 [GAD-2], Patient Health Questionnaire-2 [PHQ-2], Primary Care PTSD Screen for DSM-5 [PC-PTSD-5], Mini-Cognitive Assessment Instrument for Dementia [Mini-Cog], and the Single-item Screener Test for Sleep [STS] were used for assessment [7–11]. Most patients could read in Hindi or were bilingual, so the Hindi versions of GAD-2, PC-PTSD 5, Mini-Cog, STS and PHQ-2 were used. PC-PTSD-5 and STS were translated from English to Hindi following the WHOQOL translation methodology [12] prior to the study. PHQ-2, GAD-2, PC-PTSD-5 and STS were self-administered to the majority of patients (>75%). For the remaining patients, the researcher read out the questions in Hindi or English as appropriate, but marked the response indicated by the patient. Psychiatric diagnosis was made according to DSM-5. Information related to demographics (age, gender), COVID-19 related parameters (i.e. infection severity [13], persistence of COVID symptoms beyond two months, treatment history) and presence of co-morbid illness were retrieved from admission records. Ethical clearance was obtained from the Institute Ethics Committee. Prevalence of mental disorders was computed.

3. Results

The sample was consistent of 58% male patients. The mean age of the patients was 44.1 + 12.9 years. About half of the patients had had mild while about half had moderate/severe COVID-19 infection (asymptomatic 2%, mild 49%, moderate 26%, severe 24%); and 22% of patients reported persistent COVID symptoms beyond two months. About two-fifths had been hospitalized (38%), with mean hospitalisation duration of 16.3 ± 14.2 days. One third of the patients had been treated with steroids (33%); and a quarter (26%) of patient was found to have co-morbid illnesses such as diabetes, hypertension, coronary artery disease, and significant respiratory disease– (chronic obstructive pulmonary disease, asthma, tuberculosis and known active malignancies).

Among the 220 subjects assessed, 47.7% screened positive for mental health problems (anxiety [30.9%], insomnia [29.1%], depression [22.3%], posttraumatic stress [13.6%] and cognitive disturbance [7.3%]. More than one third (35.5%) of the subjects had a mental disorder according to DSM-5 (insomnia disorders [22.7%], anxiety disorders [12.3%], depressive disorders [11.4%], stress disorders [5.9%] and cognitive disorders [1.4%]) (Supplement Table 1).

The recommended cut off scores of GAD-2 (3/4), PHQ-2 (3/4), STS (4/5) provided the best sensitivity and specificity values for DSM-5 anxiety, depressive and sleep disorders, respectively (Table 1). For PC-PTSD-5, the recommended cut off scores provided reasonable sensitivity and specificity for DSM-5 PTSD but lower cut off scores on these scales (PC-PTSD 2/3) provided better sensitivity without loss of specificity and agreement with the respective DSM-5 diagnoses.

The agreement (kappa) between cases screened positive based on standard cut-offs and respective DSM-5 diagnoses was in the acceptable range wherever it could be computed (any disorder [0.69], anxiety disorders [0.45], depressive disorders [0.59], PTSD [0.52] and insomnia [STS 0.76]).

There were very few associations between sociodemographic, COVID related clinical, and service use variables and psychiatric diagnosis. A negative correlation was observed between age and score on Mini-Cog

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Table 1
Performance characteristics of screening instruments ($n = 220$).

	Scale	Cut off	Sensitivity/ Specificity	Agreement (Kappa, SE)
Any (of the five) common mental health condition				0.69 (0.05)
Anxiety	GAD-2	3/4	0.93/ 0.80	0.45 (0.06)
Depression	PHQ-2	3/4	1.00/ 0.88	0.59 (0.07)
Posttraumatic Stress	PC-PTSD-5	2/3	0.92/ 0.92	0.53 (0.09)
		3/4	0.77/ 0.90	0.52 (0.09)
Sleep disturbance	STS	4/5	0.94/ 0.90	0.76 (0.05)

($r = -0.157$, $p < 0.05$). COVID severity showed a positive correlation with PC-PTSD scores ($r = 0.17$, $p < 0.05$).

4. Discussion

The findings suggest that psychiatric symptoms and disorders are common in patients recovering from COVID-19 infection and can be efficiently screened with very short screening instruments (administration time: 10–15 min; most could be self-administered) even in busy clinics in low- and middle-income countries.

The rate of psychiatric diagnosis (35.5%) in our study was about twice as high as that reported by Taquet and coworkers in USA, who used a retrospective cohort design [3]. This could be due to prospective design of our study. The standard Hindi versions of GAD-2 and PHQ-2 and Hindi versions of PC-PTSD-5 and STS (specifically translated for the study) were used but none have been validated in Hindi which could explain discrepancies in prevalence rates in this study compared to others. It is also possible that structural barriers in the form of need for prior online appointment favoured the attendance of more educated (and perhaps more psychologically aware) patients at follow up. The high rates of psychiatric morbidity in clinical samples can have public health consequences.

Our study provides evidence for substantial psychiatric morbidity in the initial follow up period after COVID-19 infection. This study could provide some insights on how screening tools can be used to assess long-term COVID-19 psychiatric co-morbidity. The impact of mental health issues cannot be neglected in patients recovering from COVID-19 and has been reported as key area of research in recent US agenda for long COVID-19 research [2].

Supplementary data to this article can be found online at https://doi.org/10.1016/j.genhosppsych.2022.09.002.

Ethical consideration

Ethic's permission was taken from institute's ethics committee before beginning the study.

Author contributions

All the authors fulfil the ICMJE criteria for authorship for the paper. AM, RKC, PPS and RV planned the study. DPS was the principal investigator who collected the data and conducted the statistical analysis. AS was the co-invstigator who screened patients during data collection. First draft was written by DPS and SN under the guidance of PPS, which was further supervised and corrected by RKC, RV and AM. All authors contributed to and critically revised the manuscript and approved for final version.

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Declaration of Competing Interest

Authors do not have any conflict of interest.

Data availability

The data that has been used is confidential.

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