Introduction

The World Health Organization declared the outbreak of COVID-19 a Public Health Emergency of International Concern on January 30, 2020, and a pandemic on March 11, 2020. Globally, 12.9 million cases and 1.6 million lives have been lost since the start of the pandemic. The sudden outbreak of COVID-19 is transforming the psychology and interpersonal relationships of millions across the globe. People are scared and panicky about the possible loss of health, life, and wealth. Post-traumatic stress disorder (PTSD) is a condition which can develop among those experiencing psychological trauma and can cause substantial distress and disruption in one's life during a pandemic. This study aims to assess the prevalence of PTSD among the COVID-19 survivors in Manipur and its predictors. 

Materials and Methods: This cross-sectional study was conducted among the COVID-19 survivors aged 18 years and above from July to September 2020 in Manipur using a validated instrument—the Post-Traumatic Stress Disorder Checklist-5 (PCL-5) based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) for screening PTSD which was administered through phone-based Google Form questionnaire. Descriptive statistics like mean and percentages were used and bivariate and multivariate logistic regression were used for predicting PTSD, taking $P < 0.2$ and $P < 0.05$, respectively.

Results: Out of the 228 participants screened, 67.5% were identified for PTSD symptoms. Increasing age of the participants (Adjusted Odds Ratio (AOR): 1.1; 95% CI: 1.19–1.13), being employed in the private sector (AOR: 14.55; 95% CI: 1.50–13.73), urban residence (AOR: 2.07; 95% CI: 1.01–4.25), and those referred by a doctor for testing Coronavirus Disease (COVID 19) (AOR: 7.90; 95% CI: 2.82–22.1) were found significantly more likely to have the PTSD symptoms.

Conclusion: Nearly three-fourths of the COVID-19 survivors were found to have PTSD symptoms. The active involvement of mental health professionals for psychosocial support and timely counseling along with support from the family and community is needed to avert the deleterious effect of the pandemic on mental health.

Keywords: COVID-19, mental health, pandemic, psychosocial, PTSD
India has reached 11 million cases with 1.6 lakh deaths to date. Meanwhile, the state of Manipur is contributing with 29,459 active cases and 375 deaths to date. With a vast number of people being affected and suffering from the COVID-19 pandemic, the situation remains grim. The exposure to infectious disease pandemics has caused many psychological traumas including traumatic experiences during treatment and confinement as well as experiencing the realistic or unrealistic fear of infection, social isolation, exclusion, and stigmatization. Epidemiological studies have illustrated a high prevalence of mental health problems among the survivors, families of the victim, healthcare workers, and at large, the general population. A study of long-term psychiatric morbidities among the Severe acute respiratory syndrome (SARS) survivors revealed the prevalent long-term psychiatric disorders as high as 58.9%,

The primary care physicians are the physicians of first contact for the general population. They should be equipped to screen patients for disorders related to mental health for timely diagnosis or referral to improve the quality of life and health outcomes. Mental disorders are often underserved in our country due to stigma, lack of trained providers, and inadequate resources. Hence, the primary care physicians could help actively fill this lacuna for ensuring better mental health services.

With the considerations of the already large and still increasing number of people suffering from COVID-19 coupled with the high mortality, there is an urgent need to assess the mental health effect of the pandemic to plan for appropriate mental health services targeted for the COVID-19 survivors. This study aims to assess the prevalence of PTSD and its associated factors among the COVID-19 survivors in Manipur, Northeast India.

Methods

Study design and population

The study was a community-based cross-sectional study conducted from July to December 2020, using a Google Form questionnaire. Manipur is located in the remote Northeastern part of India with a total population of 28.56 lakhs and a literacy rate of 76.94% according to Census 2021 covering an area of 22,327 km. A surge in the COVID-19 cases was observed in the state starting from July 2020 after the influx of cases mostly from homebound natives during the nationwide lockdown. To combat the rising number of cases, the Government had set up nine COVID-care-centers along with two tertiary care level dedicated COVID wards across the state. During the study period, around 550 confirmed cases of COVID-19 were admitted at various COVID-care-centers and hospitals.

The study population comprised COVID-19 survivors aged 18 years and above who were admitted at the COVID-care-facility or tertiary care dedicated COVID wards during July–September 2020 and who had completed 1-month duration from the date of discharge. Those who failed to respond after three contacts were excluded from the study. The contact details were obtained from the centers and state Integrated Disease Surveillance Program (IDSP) cell maintaining confidentiality with approval from the pertinent authority.

Sample size calculation and sampling technique

The sample size was calculated using a prevalence of 20.3% from a previous study by Chang and Park by taking an allowable error of 6% and at a 95% confidence interval after adding 10% for non-responders. The calculated sample size was found to be 196, rounded to 200. All eligible participants were consecutively enrolled in the study till the required sample size was achieved.

Variables, tool, technique, and data collection

The study tool consists of a Google Form questionnaire which has three sections. The first section informs about the purpose of the study, the risk benefits involved, and ask for voluntary informed consent from the participants. The second section collects the sociodemographics and health-seeking characteristics of the participants. The third section consists of a validated instrument, namely the PCL-5 questionnaire checklist for DSM-5, which is a 20-item self-reporting measure that assesses the presence and severity of PTSD symptoms. The items on the PCL-5 correspond with DSM-5 criteria for PTSD symptoms. They are used for quantifying and monitoring symptoms over time, screening individuals, and assisting in making a provisional diagnosis of PTSD. The tool is validated and is intended to assess patient symptoms with PTSD in the past month. The respondents are asked to rate how bothered they have been by each of the 20 items in the past month on a 5-point Likert scale ranging from 0 to 4, with 0 = not at all, 1 = a little bit, 2 = moderately, 3 = Quite a bit, and 4 = extremely. The total severity score ranges from 0 – 80. The PCL-5 can determine a provisional diagnosis of PTSD using a cut-point score of 31–33 based upon the current psychometric work.

Operational definition

For this study, a cut-off score of 33 or more was used to identify the probable cases of PTSD among the participants.

Each item in the questionnaire was translated into the local language and back-translated again to check for consistency. The Google Form questionnaire consists of items both in English and the local language. It was administered to the participants through phone, SMS, or social media platforms such as WhatsApp using a Google Form link.

Statistical analysis

Data entry and analysis were performed using SPSS software version 20 (IBM Corp., Armonk, NY). The descriptive statistics were analyzed using mean, percentage, and proportion. Variables with a value of $P \leq 0.2$ in bivariate analysis were taken for
multivariate logistic regression analysis where $P \leq 0.05$ was considered to be statistically significant.

### Ethical considerations

The study was approved by the Institutional Ethics Committee, Jawaharlal Nehru Institute of Medical Sciences, Imphal for Proposal No. 288/03/2021_v 01 submitted on 14/08/2020. Informed consent was taken; all collected data were coded and stored in password-protected computer files for maintaining anonymity and confidentiality.

### Results

A total of 228 completed responses were included in the analysis. The mean age of participation was 35.7 ± 9.5 years. The males constituted more than half (136, 59.6%), and almost half of the respondents were married (107, 47.4%). A majority of the participants were Hindu by religion (134, 58.8%). A majority (105, 46.1%) were either unemployed or students. Around 95 (41.7%) were identified through contact tracing and more than half of them (125, 54.8%) had symptoms on admission and a quarter of them (37.3%) had a fever as a symptom. The mean (Standard Deviation (SD)) duration of stay at the centers was 7.38 ± 5.01 days and ranged from 2 to 20 days [Table 1].

### Predictors of PTSD

The total PCL-5 score obtained ranged from 20 to 66 with a mean (SD) score of 41.9 ± 13.9. Almost two-thirds (154, 67.5%) had a score above 33, hence, categorizing them as probable cases of PTSD. Age, marital status, occupation, place of residence, and COVID testing referral system were included in the adjusted model for logistic regression analysis.

The increasing age of the participants (AOR: 1.10; 95% CI: 1.19–1.13) $P = 0.008$, being employed in a private sector (AOR: 4.55; 95% CI: 1.50–13.75) $P = 0.007$, urban by residence (AOR: 2.07; 95% CI: 1.01–4.25) $P = 0.047$, and those referred by a doctor for testing COVID-19 (AOR: 7.90; 95% CI: 2.82–22.1) $P = 0.0001$, or through contact tracing (AOR: 3.34; 95% CI: 1.53–7.28) $P = 0.002$ were found to be significant predictors for PTSD in the adjusted multivariate regression analysis [Table 3].

### Discussion

In this maiden study to assess the prevalence of PTSD among the COVID-19 survivors, we found a prevalence of 67.5% among the facility-admitted patients. Various studies to assess PTSD conducted elsewhere were mostly done on the general population, quarantined population, or health care providers exposed to care and management of the COVID-19 patients. In a study conducted in Korea among the hospital-admitted COVID-19-treated patients, a high prevalence of 27.7% among the home-quarantined university students as compared to our study. Also, a study in China by Cao et al. showed a lower prevalence of PTSD (7.1%). These inconsistent findings may be attributed to the different categories of the study population as well as the type of tools used for the assessment and the difference in the setting and health care environment.

Table 2 shows the item-wise score of the PCL-5 checklist by the respondents. Around 92 (40.3%) reported that they have trouble falling or staying asleep and 18 (7.9%) reported experiencing extremely repeated, disturbing, and unwanted memories of a stressful experience.

A web-based survey conducted among the general population using Google Forms by Singh et al. in India on the psychological impact of COVID-19 reported a prevalence of 28.2% for PTSD. A study conducted by Peng et al. in China among the quarantined population reported a prevalence of 6.21%. A study done by Makhashvili et al. in the Republic of Georgia showed a prevalence of 11.8% of PTSD among women. Sanguino et al. in a study among the general population in Spain also revealed a lower PTSD prevalence (15.8%). A study by Chang and Park conducted in Korea among the hospital-admitted COVID-19-treated patients reported a lower prevalence of PTSD of 20.3%. Another study by Tang et al. in China showed a prevalence of 2.7% among the home-quarantined university students as compared to our study. Also, a study in China by Cao et al. among high school students revealed a lower prevalence of PTSD (7.1%). These inconsistent findings may be attributed to the different categories of the study population as well as the type of tools used for the assessment and the difference in the setting and health care environment.

### Table 1: The sociodemographic profile of the respondents (n=228)

| Variable                  | n (%)       |
|---------------------------|-------------|
| Gender                    |             |
| Male                      | 136 (59.6)  |
| Female                    | 92 (40.4)   |
| Marital status            |             |
| Married                   | 107 (46.9)  |
| Unmarried                 | 108 (47.4)  |
| Others                    | 13 (5.7)    |
| Religion                  |             |
| Hindu                     | 134 (58.8)  |
| Christian                 | 63 (27.6)   |
| Muslim                    | 14 (6.1)    |
| Others                    | 17 (7.5)    |
| Occupation                |             |
| Government                | 74 (32.5)   |
| Private                   | 49 (21.5)   |
| Others                    | 105 (46.1)  |
| Place of residence        |             |
| Rural                     | 117 (51.3)  |
| Urban                     | 111 (48.7)  |
| Testing referral          |             |
| Self                      | 78 (34.2)   |
| Doctor                    | 46 (20.2)   |
| Contact tracing           | 95 (41.7)   |
| Others                    | 9 (3.9)     |
| Symptoms on admission     |             |
| No                        | 103 (45.2)  |
| Yes                       | 125 (54.8)  |
Table 2: Responses to PCL-5 checklist items

| Item | Responses |
|------|-----------|
|      | Not at all | A little bit | Moderately | Quite a bit | Extremely |
| 1. In relation to COVID experience, do you have repeated, disturbing, and unwanted memories of stressful experience? | 34 (14.9) | 109 (47.8) | 53 (23.2) | 14 (6.1) | 18 (7.9) |
| 2. In relation to COVID experience, do you have repeated, disturbing dreams of the stressful experience? | 69 (30.3) | 92 (40.4) | 64 (28.1) | 3 (1.3) | 0 (0) |
| 3. In relation to COVID experience, do you have a sudden feeling or acting as if the stressful experience were actually happening again? | 93 (40.8) | 78 (34.2) | 54 (23.7) | 3 (1.3) | 0 (0) |
| 4. In relation to COVID experience, do you feel very upset when something reminded you of the stressful experience? | 69 (30.3) | 66 (28.9) | 70 (30.7) | 15 (6.6) | 8 (3.5) |
| 5. Do you have a strong physical reaction when something reminded you of the stressful experience? | 101 (44.3) | 92 (40.4) | 22 (9.6) | 13 (5.7) | 0 (0) |
| 6. In relation to COVID experience, do you avoid memories, thoughts, or feelings related to the stressful experience? | 67 (29.4) | 78 (34.2) | 50 (21.9) | 24 (10.5) | 9 (3.9) |
| 7. In relation to COVID experience, do you avoid external reminders of the stressful experience (e.g., people, places, conversation, activities, objects, situations)? | 67 (29.4) | 96 (42.1) | 40 (17.5) | 18 (7.9) | 7 (3.1) |
| 8. In relation to COVID experience, do you have trouble in remembering important parts of the stressful experience? | 99 (43.4) | 48 (21.1) | 50 (21.9) | 21 (9.2) | 10 (4.4) |
| 9. In relation to COVID experience, do you have a strong negative belief about yourself, other people, or the world (e.g., having thoughts such as I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)? | 115 (50.4) | 76 (33.3) | 28 (12.3) | 9 (3.9) | 0 (0) |
| 10. In relation to the COVID experience, do you blame yourself or someone else for the stressful experience or what happened after it? | 83 (36.4) | 72 (31.6) | 66 (28.9) | 7 (3.1) | 0 (0) |
| 11. Do you have strong negative feelings such as fear, horror, anger, guilt, or shame? | 91 (39.9) | 74 (32.5) | 32 (14.0) | 21 (9.2) | 10 (4.4) |
| 12. In relation to the COVID experience, do you have a loss of interest in activities that you used to enjoy? | 89 (39.0) | 54 (23.7) | 43 (18.9) | 24 (10.5) | 18 (7.9) |
| 13. In relation to the COVID experience, do you feel distant or cut-off from other people? | 91 (39.9) | 59 (25.9) | 29 (12.7) | 28 (12.3) | 21 (9.2) |
| 14. In relation to the COVID experience, do you have trouble experiencing positive feelings (e.g., being unable to feel happiness or having love feelings for people close to you)? | 97 (42.5) | 51 (22.4) | 47 (20.6) | 28 (12.3) | 5 (2.2) |
| 15. In relation to the COVID experience, do you have irritable behavior, have angry outbursts, or act aggressively? | 107 (46.9) | 46 (20.2) | 40 (17.5) | 32 (14.0) | 3 (1.3) |
| 16. In relation to the COVID experience, do you take too many risks or do things that cause you harm? | 117 (51.3) | 35 (15.4) | 31 (13.6) | 35 (15.4) | 10 (4.4) |
| 17. In relation to the COVID experience, are you super alert or watchful or on guard? | 53 (23.2) | 59 (25.9) | 25 (11.0) | 76 (33.3) | 15 (6.6) |
| 18. In relation to the COVID experience, do you feel jumpy or easily startled? | 99 (43.4) | 72 (31.6) | 46 (20.2) | 11 (4.8) | 0 (0) |
| 19. In relation to the COVID experience, do you have difficulty in concentration? | 103 (45.2) | 55 (24.1) | 44 (19.3) | 26 (11.4) | 0 (0) |
| 20. In relation to the COVID experience, do you have trouble falling or staying asleep? | 96 (42.1) | 40 (17.5) | 63 (27.6) | 29 (12.7) | 0 (0) |

Increasing age was found to be a significant predictor for PTSD in this study. It has been established and widely disseminated that the risk of serious disease and mortality is more among the older age group and those with co-morbid conditions. Thus, the knowledge and fear of the serious consequences of the disease could root for the increased prevalence of PTSD among older patients. The risk of developing PTSD was higher among those who were unmarried as compared to the participants who were married though not statistically significant. Sharing or relating the traumatic experiences during the period of confinement with a spouse may help in relieving some of the distressing memories.

Psychosocial support from family members is very important to diminish the long-term mental health consequences of the disease. Guo et al. reported that people who lived alone had an increased risk of anxiety or depressive symptoms in a study conducted among the quarantined adults during the COVID-19 outbreak in China.

In our study, the proportion of PTSD was found to be significantly higher among those employed in the private sector. Financial stress and insecurity may act as added burdens, thus, increasing the risk of PTSD among the participants working in the private sector. In a survey of 2,011 American adults, it was discovered that, for some people, worry over paying bills can be as debilitating as PTSD. Galen Buckwalter called this condition Acute Financial Stress (AFS). People with AFS experience nightmares, hyper-vigilance, avoidance, and other intense psychological symptoms. Golin et al. stated that living in economically
disadvantaged, disordered neighborhoods with continued exposure to stressors, and lacking social support are less likely to experience improvements in the PTSD symptoms.

PTSD was higher among those residing in urban areas as compared to rural. Paro et al.[36] reported that those living in an urban environment may be more likely to develop PTSD symptoms than those in suburban or rural environments. This could be due to the stressful lifestyle for urban residents coupled with the onslaught of the infodemic related to the pandemic through various social media to which they are exposed to. Since the start of the pandemic, public health experts noted that the stress and fear associated with COVID-19 will likely exacerbate the existing mental health disorders and contribute to the onset of new stress-related disorders, thus, increasing the potential for PTSD prevalence in the general population.[37]

The limitation of the study is that it could appraise only those who responded through the Google link provided, implicating underestimation for those who could not take part in this manner. The study did not assess those who were home-isolated when tested positive, thereby, limiting the generalizability. However, this study was carried out to look into the unseen area of mental health concerning the COVID-19 survivors amid the nationwide lockdown and is the first of its kind for the state of Manipur.

Thus, the psychological consequences of COVID-19 could be serious. Some of the mental health promotion strategies that can be taken up are that all COVID-19 treatment centers be provided with a designated mental health support network. Ideally, both psychiatric and counseling services need to be made available. The primary care physicians also need to be made aware of the various possible mental health support systems and the tools that are validated to make available locally for timely screening and referral to proper higher centers. The frontline health personnel may identify the symptoms of depression or anxiety but may not recognize PTSD owing to the high degree of overlap between these conditions, and the lack of familiarity with the PTSD diagnostic criteria.[13] There is a call for a district-/state-level helpline for mental health support to be made available round the clock.

Our study depicted novel findings such as increased odds of PTSD in those patients referred by the doctor for COVID testing or through contact tracing. This can be interpreted as a result of stigmatization among the patients that involves disclosure and access to index a person’s social networks.[29]

### Conclusion

Nearly three-fourths of the COVID survivors were found to have PTSD symptoms. Public health intervention in the form of counseling and screening of the vulnerable population, especially the COVID-19 survivors, is necessary for timely referral and treatment to avoid mental health-related morbidities and mortalities. Active involvement of the mental health professionals for psychosocial support and timely counseling along with support from the family and community can prevent the deleterious impact of the pandemic on mental health. Also, a properly equipped screening instrument by the primary care physicians can help in the timely management of PTSD-related health effects.

### Summary

In this community-based cross-sectional study to assess the prevalence of PTSD and its associated factors among the COVID-19 survivors in Manipur, it was found that almost two-thirds had PTSD. The increasing age of the participants, being employed in the private sector, urban by residence, and those referred by a doctor for testing COVID-19, or through contact tracing were found to be significant predictors for PTSD in the adjusted multivariate regression analysis.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.
References

1. World Health Organization. COVID-19 WHO weekly epidemiological update. 2020. Available from: www.who.int. [Last accessed on 2020 Dec].

2. World Health Organization. Coronavirus disease (COVID-19) weekly epidemiological update and weekly operational update. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports. [Last accessed on 2021 Mar].

3. Alshehi FS, Alatawy Y, Alghamdi BS, Alhifany AA, Alhabi A. Prevalence of post-traumatic stress disorder during the COVID-19 pandemic in Saudi Arabia. Saudi Pharm J 2020;28:1666-73.

4. Shalev AY, Marmar CR. Posttraumatic stress disorder. In: Sadock BJ, Sadock AV, Ruiz, editors. Kaplan and Sadock's Comprehensive Textbook of Psychiatry. 10th ed. Philadelphia: Wolters Kluwer; 2017.

5. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorder, 5th edition (DSM-5). Washington: American Psychiatric Publishing; 2013.

6. Government of India. Ministry of Health and Family Welfare. Available from: https://www.mohfw.gov.in/. [Last accessed on 2021 Feb].

7. National Health Mission Manipur. COVID-19 common control room press release 414. Available from: http://nhrmmanipur.org/?p=2826. [Last accessed on Feb 2021].

8. Lancee WJ, Maudner RG, Goldbloom DS. Prevalence of psychiatric disorders among Toronto hospital workers one to two years after the SARS outbreak. Psychiatr Serv 2008;59:91-5.

9. Mak IW, Chu CM, Pan PC, Yiu MG, Chan VL. Long-term psychiatric morbidities among SARS survivors. Gen Hosp Psychiatry 2009;31:318-26.

10. Davydow DS, Desai SV, Needham DM, Bienvenu OJ. Psychiatric morbidity in survivors of the acute respiratory distress syndrome: A systematic review. Psychosom Med 2008;70:512-9.

11. Mak IW, Chu CM, Pan PC, Yiu MG, Ho SC, Chan VL. Risk factors for chronic post-traumatic stress disorder (PTSD) in SARS survivors. Gen Hosp Psychiatry 2010;32:590-8.

12. Tang W, Hu T, Jin C, Hu B, Wang G, Xie C, et al. Prevalence and correlates of PTSD and depressive symptoms on month after outbreak of COVID-19 epidemic in a sample of home-quarantined Chinese university students. J Affect Disord 2020;274:1-7.

13. Census 2011. Manipur population census 2011-2021. Available from: https://www.census2011.co.in/census/state/ manipur.html. [Last accessed on 2021 Feb].

14. National Health Mission Manipur. COVID-19 common control room press release 401. Available from: http://nrhmmanipur.org/. [Last accessed on 2020 Dec].

15. Chang MC, Park D. Incidence of post-traumatic stress disorder after coronavirus disease. Healthcare 2020;8:373.

16. National Center for PTSD. Using the PTSD Checklist for DSM-5 (PCL-5). Available from: https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp. [Last accessed 2020 Jul].

17. Singh SP, Kholkhar A. Prevalence of post-traumatic stress disorder and depression in general population of India during COVID-19 pandemic home quarantine. Asia Pac J Public Health 2021;33:154-6.

18. Mazza C, Ricci E, Biondi S, Colasanti M, Ferracuti S, Napoli C, et al. A Nationwide survey of psychological distress among Italian people during the COVID-19 Pandemic: Immediate psychological responses and associated factors. Int J Environ Res Public Health 2020;17:3165.

19. Makhshivili N, Javakhishvili JD, Sturua I, Pilauri K, Fuhr DC, Roberts B. The influence of concern about COVID-19 on mental health in the Republic of Georgia: A cross-sectional study. Glob Health 2020;16:111.

20. Sanguinio CG, Ausin B, Castellanos MA, Saiz J, Gomez AL, Ugidos C, et al. Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. Brain Behav Immun 2020;87:172-6.

21. Liu CH, Zhang E, Wong GT, Hyun S, Hahm HC. Factors associated with depression, anxiety and PTSD symptomatology during the COVID-19 pandemic: Clinical implications for U.S. young adult mental health. Psychiatry Res 2020;290:113172.

22. Fawaz M, Samaha A. COVID-19 quarantine: Post-traumatic stress symptomatology among Lebanese citizens. Int J Soc Psychiatry 2020;66:666-74.

23. Peng M, Mo B, Liu Y, Xu M, Song X, Liu L, et al. Prevalence risk factors and clinical correlates of depression in quarantined population during the COVID-19 outbreak. J Affect Disord 2020;275:119-24.

24. Guo Y, Cheng C, Zeng Y, Li Y, Zhu M, Yang W, et al. Mental health disorders and associated risk factors in quarantined adults during the COVID-19 outbreak in China: Cross-sectional study. J Med Internet Res 2020;22:e20328.

25. Rossi R, Soci V, Talevi D, Mensi S, Niolu C, Pacitti F, et al. COVID-19 pandemic and lockdown measures impact on Mental health among the general population in Italy. Front Psychiatry 2020;11:790.

26. Fekih-Romdhane F, Ghrisi F, Ambassi B, Cherif W, Cheour M. Prevalence and predictors of PTSD during the COVID-19 pandemic: Findings from a Tunisian community sample. Psychiatry Res 2020;290:113131.

27. Cao C, Wang L, Fang R, Liu P, Luo S, Grace E, et al. Anxiety, Depression and PTSD symptoms among high school students in response to the COVID-19 pandemic and lockdown. J Affect Disord 2021;296:126-9.

28. Perry BL. Contact tracing could exacerbate COVID-19 health disparities: The role of economic precarity and stigma. Am J Public Health 2021;111.

29. Xiao S, Luo D, Xiao Y. Survivors of COVID-19 are at high risk of posttraumatic stress disorder. Glob Health Res Policy 2020;5:29-31.

30. Yang J, Zheng Y, Gou X, Pu K, Chen K, Guo Q, et al. Prevalence of comorbidities and its effects in patients infected with SARS-CoV-2: A systematic review and meta-analysis. Int J Infect Dis 2020;94:91-5.

31. Wan S, Xiang Y, Fang W, Zheng Y, Li B, Hu Y, et al. Clinical features and treatment of COVID-19 patients in northeast Chongqing. J Med Virol 2020;92:797-806.

32. Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, et al. Clinical course and risk factors for mortality of adult in patients with COVID-19 in Wuhan, China: A retrospective cohort study. Lancet 2020;395:1054-62.

33. Huang C, Wang Y, Li X, Lili Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus.
in Wuhan, China. Lancet 2020;395:497-506.

34. Brooks A. A payoff study: Financial stress causes PTSD-like symptoms in 1 in 4 Americans. Available from: https://www.cardrates.com/news/payoff-study-on-financial-stress/. [Last accessed on 2021 Jan 20].

35. Golin CE, Haley DF, Wang J, Hughes JP, Kuo I, Justman J, et al. Post-traumatic stress disorder symptoms and mental health over time among low-income women at increased risk of HIV in the U.S. J Health Care Poor Underserved 2016;27:891-910.

36. Parto JA, Evans MK, Zonderman AB. Symptoms of posttraumatic stress disorder among urban residents. J Nerv Ment Dis 2011;199:436-9.

37. Horesh D, Brown AD. Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. Psychol Trauma 2020;12:331-5.