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Letter to the Editor

Psychiatric burdens or stress during hospitalization and concerns after discharge in patients with severe acute respiratory syndrome coronavirus-2 isolated in a tertiary care hospital



Dear Editor,

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has now infected tens of thousands of people in China and has spread rapidly around the globe. Many patients with SARS-CoV-2 have been admitted and are isolated for appropriate infection prevention and control.

During the severe acute respiratory syndrome (SARS) coronavirus outbreak in 2003 and the Middle East Respiratory Syndrome (MERS) coronavirus outbreak in 2014, infected individuals were isolated, and they faced mental health challenges and psychiatric burdens during hospitalization (Lin et al., 2010, Kim et al., 2018). Separation from loved ones, loss of freedom, uncertainty over disease status, and boredom can, on occasion, create dramatic effects. Incidents of suicide in these cases have been reported (Brooks et al., 2020).

Little is known about psychiatric burdens or stress in patients with SARS-CoV-2 quarantined in hospitals. Thus, we retrospectively conducted a chart review in order to identify psychiatric burdens or stress during hospitalization and concerns after discharge in inpatients with SARS-CoV-2.

We conducted a retrospective chart review on all the confirmed patients with SARS-CoV-2 admitted to the National Center for Global Health and Medicine during the outbreak from January 29, 2020 through March 13, 2020. As part of mental support in their daily patient care, we conducted one-on-one semi-structured individual interviews with inpatients with SARS-CoV-2 1 to 2 days before discharge. Each interview lasted approximately 20 minutes. The interviews were recorded in the patients' notes. Each patient's background (age, sex, nationality, length of hospital stay), psychiatric burdens or stress during hospitalization, and concerns after discharge were reviewed. This study was reviewed and approved by the Ethics Committee of the Center Hospital of the National Center for Global Health and Medicine after compliance with the condition that a document that declares an opt-out policy by which any possible patient and/or relatives could refuse to be included in this study was uploaded on the Web page of the Center Hospital of the National Center for Global Health and Medicine.

The chart reviews were concluded when all items to be investigated had been fully covered and the content was analyzed using qualitative research methods. Anonymous transcripts were created using the patients' notes. Then, we identified words or phrases associated with psychiatric burdens or stress during hospitalization and concerns after discharge. These extracted semantic units were coded, and the codes were collated into subcategories, which were then collated into major categories.

A total of eight patients' notes were reviewed. Among them, the median age was 51.5 years (IQR: 40–67). Four were male. Five were Japanese, two were Canadian, and one was Chinese. The median length of hospital stay was 20 days (IQR: 17–26). Their opinions regarding

psychiatric burdens or stress during hospitalization and concerns after discharge were analyzed and categorized into four and three categories, and fourteen and seven subcategories, respectively (Appendix 1).

One of the most important findings in this study was that some inpatients would isolate themselves after discharge because they were worried about the disease relapsing and transmitting the virus to their family members. Meanwhile, some inpatients had discrimination, prejudice, and suspension and dismissal from work. This factor is relevant because it increases the risk of long-term social isolation after discharge and may increase the risk of suicide (Barbisch et al., 2015). Appropriate mental support for patients with SARS-CoV-2 infection after discharge as well as during hospitalization is necessary. In addition, further studies to explore human-to-human transmission and treatment options are needed to prevent further outbreaks and to reduce patients' fear of transmitting the virus to their loved ones.

The second important finding was that some inpatients worried that they would be identified as a SARS-CoV-2-infected patient based on information on media and case reports. One of them was identified as a SARS-CoV-2-infected patient by his colleagues. Disclosure of information to the media and the handling of personal information in case reports must be closely looked into. Fear of being socially marginalized and stigmatized may cause vulnerable patients to deny early clinical symptoms and may contribute to their failure to seek timely medical care, resulting in another cluster (Person et al., 2004). Also, this fear aggravates the abovementioned sense of isolation, and may also increase the risk of suicide (Barbisch et al., 2015).

The third important finding was that most of the patients interviewed did not have financial difficulties nor language or cultural issues, and that the hospital was considered as a safe shelter with excellent medical care. In order to prevent the financial burden on patients and to further strengthen patient support systems after discharge, we will continue to work with government agencies such as health centers and the Ministry of Health, Labor, and Welfare.

This study had several limitations. First, this study was not a prospective qualitative study, but a retrospective chart analysis. Thus, the sample size was small, and information might not be saturated. Second, a total of twelve patients with SARS-CoV-2 were discharged during the study period. However, four patients did not have mental support as part of their daily patient care. Thus, the opinions of the eight patients interviewed might be biased. Finally, cultural differences might limit the universal applicability of our findings. Whether or not the findings of this study can be applied to patients of other ethnicities remains unknown.

In conclusion, we identified psychiatric burdens or stress during hospitalization and concerns after discharge in inpatients with SARS-CoV-2. Awareness of these and implementation of necessary measures is needed in order to minimize the risk of long-term social isolation after discharge and potential risk of suicide.

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Supplementary materials

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Appendix I. Categories and subcategories of causes of psychiatric burdens/stress during hospitalization and concerns after discharge

Psychiatric burdens/stress during hospitalization	
Category	Subcategory
Medical	Unclear natural course of the disease Unclear effectiveness of the treatment Concerns about relapse Refill of medication (unavailability of the same medication)
Economic	No worry about the hospitalization fee because it would be covered by the Japanese government due to Japanese designated infectious disease system Financial support during hospitalization from the Japanese government
Patient care system	Lack of facilities (no Wi-Fi service, no place to exercise) Quality of meals be improved. No language/cultural issues
Privacy	Hospital was a safe shelter with excellent medical care by healthcare providers Worried that I would be identified as a SARS-CoV-2-infected patient based on information in the media, such as details of return flights from Wuhan to Japan, and detailed contents in case reports such as age and sex. I was identified as a SARS-CoV-2-infected patient by my colleagues because I came back from Wuhan to Japan in a large group. Private questions from health centers can be asked to hospital staff.
Concerns after discharge	
Category	Subcategory
Medical	Scared of transmitting the virus to others, especially vulnerable people such as elderly parents. Always worried about symptom relapse and turning positive in the PCR test.
Social	Stay away from family Discrimination, prejudice, suspension and dismissal from work Negotiating with the airline company upon return is necessary.
Privacy	Concerned that it may be rumored that I am a SARS-CoV-2-infected person after returning home. Worried about being exposed to the media.

SARS-CoV-2: severe acute respiratory syndrome coronavirus 2

PCR: polymerase chain reaction

References

- Lin, E.C., Peng, Y.C., Tsai, J.C., 2010. Lessons learned from the anti-SARS quarantine experience in a hospital-based fever screening station in Taiwan. *Am J Infect Control* 38 (4), 302–307.
- Kim, H.C., et al., 2018. Psychiatric Findings in Suspected and Confirmed Middle East Respiratory Syndrome Patients Quarantined in Hospital: A Retrospective Chart Analysis. *Psychiatry Investig* 15 (4), 355–360.
- Brooks, S.K., et al., 2020. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 395 (10227), 912–920.
- Barbisch, D., Koenig, K.L., Shih, F.Y., 2015. Is There a Case for Quarantine? Perspectives from SARS to Ebola. *Disaster Med Public Health Prep* 9 (5), 547–553.
- Person, B., et al., 2004. Fear and stigma: the epidemic within the SARS outbreak. *Emerg Infect Dis* 10 (2), 358–363.

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