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Letter to the Editor

Mental health and psychological impact of COVID-19: Potential high-risk factors among different groups

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Since the end of 2019, the horrible contagion COVID-19 has caused more than 7,000,000 infections and 400,000 death globally. In addition to physiological damage, it also induces a noteworthy psychological impact on different groups.

Some Asia countries (particularly China with Hong Kong, South Korea, Taiwan, Singapore, etc.) appeared to have weathered the initial storm, there might be something to learn from the experience of coping with this crisis and the survey results from the early stage (Tandon, 2020). Therefore, based on the latest survey about COVID-19 and evidence from the past epidemics, it is meaningful to analyze the potential high-risk factors of mental disorders among different groups and identify the groups which may need close attention.

In consideration of the diverse roles in the field of public health, healthcare workers, patients with confirmed or suspected COVID-19 and the general public are regarded as three different groups. The following sections describe the details separately (Fig. 1).

1. For healthcare workers

In a quantitative study involving 994 healthcare workers in Wuhan (the hardest hit city in China)(Kang et al., 2020), four scales (PHQ-9,GAD-7,ISI and IESR) were used to evaluate depression, anxiety, insomnia and distress, respectively. They found that those with a higher level of distress had a more extensive scope of exposing to COVID-19 patients. Those with severe psychological disturbances had less access to psychological resources and support. Another cross-section study showed that nurses, women, frontline workers, and those working in Wuhan are reported to experience more severe symptoms and have higher scores in the same 4 scales mentioned above. (Lai et al., 2020). The incidence of anxiety and the score of PTSD-SS in female medical staff was found to be higher than that in male [25.67 % (48/187) vs 11.63 % (5/43), $p = 0.045$], [(44.30 ± 18.42) vs(36.91 ± 13.95), $p = 0.014$], respectively. Also, the incidence of anxiety in nurses was higher than that in doctors, which is similar to a survey result during the SARS outbreak. The reason of such result might be that nurses are exposed to heavier workloads and longer working duration. Younger (age ≤ 30) medical workers tend to be more depress than the older, although the difference was not statistically signficant(Liang et al., 2020), which might be due to less working experience and relatively poor psychological capacity.

2. For patients with suspected or confirmed COVID-19

Patients with suspected COVID-19 may experience fear of being infected and might feel bored, lonely, and angry during quarantine. A study during MERS epidemic pointed out some risk factors for anxiety symptoms and anger in isolated individuals, including relevant symptoms, inadequate supplies, social networking activities, history of psychiatric illnesses, and financial losses. Remarkably, people with history of psychiatric disorders tend to have weak control of anxiety and anger, because of neurotransmitter abnormalities in the cerebrum, which implies special mental interventions are necessary for them (Jeong et al., 2016).

An online assessment of 714 clinically stable COVID-19 patients showed that 96.2 % of the participants suffered from significant PTSS prior to discharge (Bo et al., 2020). A 4-year follow-up study about SARS also suggested that over 40 % of the 233 respondents had active psychiatric illnesses. Except for healthcare workers, being unemployed at follow-up (OR: 4.71;95 % CI, 1.50–14.78; $p = 0.008$), having a perception of social stigmatization (OR:3.03; 95 % CI, 1.20–7.60; $p = 0.02$) and having applied to the SARS survivors' fund (OR: 2.92; 95 % CI, 1.18–7.22; $p = 0.02$) were associated with an increased risk of psychiatric morbidities(Lam et al., 2009).

3. For the general public

Most countries restrict their citizens through different measures like banning public transport and restricting movement. The changes in lifestyle are followed by psychological impact immediately. Gender, age, education level, occupation and social capital may be some relevant factors of mental disorder level(Liu et al., 2020; Qiu et al., 2020; Wang et al., 2020).

Similar to healthcare workers, females are prone to be more mentally vulnerable in the general public. They suffered higher levels of stress, anxiety, depression and higher PTSS in many domains than male. It might be explained by the crucial role in their family and the ovarian hormone level, which is relevant with PTSS.

Individuals above 60 showed the highest level of destress during COVID-19. The highest mortality occurred among the elderly may explain this phenomenon. Previous studies revealed that there was a spike in the suicide rate especially among individuals aged above 65 in Hong

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Fig. 1. Potential high-risk factors of mental health among different groups.

Kong during the SARS epidemic. The suicide motives were more closely associated with fears of being a burden to their families.

Highly educated (with master's degree or above) and professional people seem to have a higher risk of depression. Higher self- awareness of their health and more concern about their family affair during the pandemic may act as a trigger. Because of the negative impact on academic progression, students were found to experience a higher levels of stress, anxiety, and depression, especially for the graduate class. The migrant workers experienced the highest level of depress among all occupations, probably because the mandatory quarantine requirement after floating and potential income deprivation. Those with low level of social capital, which means lack of communicating with relatives and friends, online social groups or other social support, are associated with increased levels of anxiety and stress and worse sleep quality.

In conclusion, results of these surveys suggest some potential risk factors of mental health among different groups, which might provide better targeted interventions for government advisors and healthcare professionals.

Contributors

LM and YJ drafted the manuscript. LM wrote the manuscript and figure. YJ, HX and YZ were responsible for editing the manuscript. All authors accept responsibility for the entire content of this submitted manuscript and have approved its submission.

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Declaration of Competing Interest

We declare no competing interests.

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References

Bo, H.X., Li, W., Yang, Y., Wang, Y., Zhang, Q., Cheung, T., Wu, X., Xiang, Y.T., 2020. Posttraumatic stress symptoms and attitude toward crisis mental health services among clinically stable patients with COVID-19 in China. Psychol. Med. 1–7.

Jeong, H., Yim, H.W., Song, Y.J., Ki, M., Min, J.A., Cho, J., Chae, J.H., 2016. Mental health status of people isolated due to middle east respiratory syndrome. Epidemiol. Health 38, e2016048.

Kang, L., Ma, S., Chen, M., Yang, J., Wang, Y., Li, R., Yao, L., Bai, H., Cai, Z., Xiang Yang, B., Hu, S., Zhang, K., Wang, G., Ma, C., Liu, Z., 2020. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: a cross-sectional study. Brain Behav. Immun.

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., Hu, S., 2020. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open 3 (3), e203976.

Lam, M.H., Wing, Y.K., Yu, M.W., Leung, C.M., Ma, R.C., Kong, A.P., So, W.Y., Fong, S.Y., Lam, S.P., 2009. Mental morbidities and chronic fatigue in severe acute respiratory syndrome survivors: long-term follow-up. Arch. Intern. Med. 169 (22), 2142–2147.

Liang, Y., Chen, M., Zheng, X., Liu, J., 2020. Screening for Chinese medical staff mental health by SDS and SAS during the outbreak of COVID-19. J. Psychosom. Res. 133, 110102.

Liu, N., Zhang, F., Wei, C., Jia, Y., Shang, Z., Sun, L., Wu, L., Sun, Z., Zhou, Y., Wang, Y., Liu, W., 2020. Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: gender differences matter. Psychiatry Res. 287, 112921.

Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., Xu, Y., 2020. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. Gen Psychiatr 33 (2), e100213.

Tandon, R., 2020. The COVID-19 pandemic, personal reflections on editorial responsibility. Asian J. Psychiatr. 50, 102100.

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C.S., Ho, R.C., 2020. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int. J. Environ. Res. Public Health 17 (5).

Lijie Mi[1], Yufeng Jiang[1], He Xuan, Yafeng Zhou*
Department of Cardiology, The First Affiliated Hospital of Soochow University, Suzhou, China
E-mail address: zhouyafeng73@126.com (Y. Zhou).

* Corresponding author at: Department of Cardiology, The First Affiliated Hospital of Soochow University, Suzhou, 215004, China.
[1] Lijie Mi and Yufeng Jiang contributed equally to this article.