



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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Letter to the Editor

Prevalence of self-reported depression and anxiety among pediatric medical staff members during the COVID-19 outbreak in Guiyang, China



The outbreak of the novel coronavirus disease (COVID-19) has been threatening human life and is now a serious public health problem worldwide (Gudi and Tiwari 2020). By 29 March 2020, the World Health Organization (WHO) had reported 634,835 confirmed cases around the world, and 29,957 of these patients had died (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>), with confirmed cases of the virus and the death toll still increasing. Medical workers have been facing enormous pressure, including a high risk of infection, isolation, patients with negative emotions, and overwork. The severe situation is causing mental health problems such as anxiety, depressive symptoms, insomnia, and fear, and the mental health of adult medical workers has received widespread attention during the COVID-19 outbreak (Xiang et al., 2020; Greenberg et al., 2020). However, the mental health of pediatric medical staff members has most likely been ignored due to the low number of infected children.

According to the 2016 population census, the population of children aged 0–14 years is 1 million in China (<http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/index.htm>). A previous study revealed that there were 135,524 pediatricians in China and 4 pediatricians per 10,000 children; the pediatricians reported being very stressed and having a greater workload (Zhang et al., 2019). By March 29, 2020, 146 cases of COVID-19 were reported in patients between the age of 55 days old and 87 years old in Guizhou Province, and 2 patients died (http://www.gzhfpc.gov.cn/xwzx_500663/zwyw/202002/t20200222_50658247.html).

Among these confirmed cases, fourteen cases in children were confirmed via laboratory tests. A 55-day-old baby became China's youngest COVID-19 patient; the baby was cured and discharged from Guizhou Provincial People's Hospital (Cui et al., 2020). Medical staff members work in high-risk workplaces, have a higher rate of epidemic infection than any other group and have been facing enormous pressure. Therefore, understanding the mental health of pediatricians during the COVID-19 outbreak is essential. Here, we conducted a study to assess the psychological impact of the COVID-19 outbreak among pediatric medical staff in Guiyang, China.

Data were collected through an anonymous, self-rated questionnaire. The questionnaire consisted of three parts: basic demographic data, the Self-Rating Depression Scale (SDS) and the Self-Rating Anxiety Scale (SAS). Subjects who had worked in high-risk locations, such as COVID-19 wards, fever clinics, infectious diseases departments, emergency rooms, pulmonary medicine departments, or X-ray laboratories, were classified as having had high-risk work exposure.

Finally, a total of 124 questionnaires were distributed; 105 questionnaires were collected, yielding an 84.7% response rate (105/124). A total of 90.5% of respondents were female, and the respondents had a mean age of 32.6 ± 6.5 years. A preliminary data analysis of the SAS and SDS was performed. Importantly, the mean SAS and SDS scores were significantly higher than the norms of SAS in the general Chinese population (40.3 ± 11.5 vs. 29.8 ± 10.1 for SAS, 47.1 ± 10.5 vs.

41.9 ± 10.6 for SDS, $P_s < 0.001$). Furthermore, the results showed mild anxiety (SAS scores from 50 to 59), moderate anxiety (SAS scores from 60 to 69), and severe anxiety (SAS scores ≥ 70) in 11, 6 and 2 cases, respectively. The incidences of total, slight, moderate and severe anxiety cases were 18.1%, 10.5%, 5.7%, and 1.9%, respectively. Additionally, the results showed mild depression (SAS scores from 53 to 62), moderate depression (SAS scores from 63 to 72), and severe depression (SAS scores ≥ 73) in 22, 5 and 4 cases, respectively. The incidences of total, slight, moderate and severe depression cases were 29.5%, 21.0%, 4.8%, and 3.8%, respectively. It is worth noting that the gender, age, marriage, working years, occupation, educational level, and economic income of primary medical personnel did not affect anxiety and depression. Among these 105 respondents, 19 (18.1%) reported having worked in high-risk locations, including COVID-19 wards, fever clinics, infectious diseases departments, emergency rooms, and pulmonary medicine departments, suggesting that they had exposure experience. No significant difference in morbidity of anxiety or depression was found between respondents who had COVID-19 exposure experience and those who did not. In addition, no statistically significant difference in the severity of psychiatric symptoms was found in relation to exposure experience. However, respondents who had exposure experience reported higher rates of anxiety accompanied by depression than respondents who had no exposure experience (incidence rates of 31.6% and 12.6%, respectively; $\chi^2 = 4.1$, $P = 0.042$).

In conclusion, we highlight that the prevalence of self-reported depression and anxiety among pediatric medical staff members was significantly high during the COVID-19 outbreak, and in particular, workers who had COVID-19 exposure experience were likely to have higher rates of anxiety accompanied by depression than respondents who had no exposure experience. Therefore, mental health services for front-line pediatricians should be given more attention and are urgently needed during this COVID-19 epidemic outbreak.

Funding

This study was funded by a grant from the National Natural Science Foundation of China (No. 81860280) and the Incubation Fund of the National Natural Science Foundation [2018]5764-02.

Declaration of Competing Interest

None of authors report any conflict of interest.

Acknowledgments

We thank all the pediatricians who provided written consent to participate in this study. The study was approved by the ethics

<https://doi.org/10.1016/j.psychres.2020.113005>

Received 18 March 2020; Received in revised form 10 April 2020; Accepted 12 April 2020

Available online 16 April 2020

0165-1781/ © 2020 Published by Elsevier B.V.

committee of the Baiyun District Hospital, a branch of Guizhou Provincial People's Hospital.

References

- Cui, Y., Tian, M., Huang, D., Wang, X., Huang, Y., Fan, L., Wang, L., Chen, Y., Liu, W., Zhang, K., Wu, Y., Yang, Z., Tao, J., Feng, J., Liu, K., Ye, X., Wang, R., Zhang, X., Zha, Y., 2020. A 55-Day-Old Female Infant infected with COVID 19: presenting with pneumonia, liver injury, and heart damage. *J. Infect Dis.* <https://doi.org/10.1093/infdis/jiaa113>.
- Greenberg, N., Docherty, M., Gnanapragasam, S., Wessely, S., 2020. Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *BMJ* 368, m1211. <https://doi.org/10.1136/bmj.m1211>.
- Gudi, S.K., Tiwari, K.K., 2020. Preparedness and lessons learned from the novel coronavirus disease. *Int. J. Occup. Environ. Med.* 11, 108–112. <https://doi.org/10.34172/ijoem.2020.1977>.
- Xiang, Y.T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., Ng, C.H., 2020. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry*.
- Zhang, Y., Huang, L., Zhou, X., Zhang, X., Ke, Z., Wang, Z., Chen, Q., Dong, X., Du, L., Fang, J., Feng, X., Fu, J., He, Z., Huang, G., Huang, S., Ju, X., Gao, L., Li, L., Li, T., Li, Y., Liu, G., Liu, W., Luo, X., Nong, G., Pan, J., Shen, K., Song, H., Sun, J., Mu, D., Wang, T., Wang, B., Xiang, W., Yang, C., Yang, S., Zhao, Z., Zhu, H., Zhu, Y., Zhang, J., Little, J., Hesketh, T., Sun, K., 2019. Characteristics and workload of pediatricians in China. *Pediatrics* 144. <https://doi.org/10.1542/peds.2018-3532>.

Yun Chen^a, Hao Zhou^{a,b,*}, Yan Zhou^b, Fang Zhou^a

^a *Department of Pediatrics, Guizhou Provincial People's Hospital, Guizhou Medical University, Guiyang, 550002, China*

^b *Department of Pediatrics, Baiyun District Hospital, Guiyang, 550014, China*

E-mail address: haoye320@163.com (H. Zhou).

* Corresponding author at: No. 83, Zhongshan Road, Nanming District, Guiyang, 550002, China.