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Letter to the Editor

Mental health and physical symptoms of people quarantined during the COVID-19 outbreak

We read with great interest the letter by Fernández-De-Las-Peñas and colleagues¹ in *Journal of Infection* on the status of mental health and sleep in previously hospitalized COVID-19 patients. Evidence support that after hospital discharge for seven months, almost 50% of hospitalised survivors still have anxiety or depressive symptoms and/or poor sleep quality. Meanwhile, Liu and colleagues² thought the mental health of children quarantined would be negatively affected by COVID-19, which published in *The Lancet Child & Adolescent Health*. Hence, we hypothesized that the status of mental and sleep of people at different age stages would be affected both in quarantine and postepidemic era. Here, we provide our study on the mental health and physical symptoms (includes sleep) of children (7–12 years old), adolescents (13–18 years old) and their teachers (>18 years old) quarantined at collective medical observation centers because of COVID-19.

In January 2021, a small COVID-19 outbreak occurred in Beijing city, China, and close contacts were found in some schools. Students (children and adolescents) and their teachers in these schools were quarantined at the collective medical observation center to control the spread of this virus for three weeks. To evaluate the mental health of students and teachers, a visual analogue scale³, PHQ-2 scale⁴ and generalized anxiety disorder-2 scale⁵ were used to evaluate the stress, anxiety and depression, and sent to all participants via Wechat. The physical symptoms also were collected. The work was approved by the ethics committee of our hospital, and will provide suggestions for the government to make proper interventions.

Of the 401 participants (118 male vs 283 female), 277 people were students, including 55 children and 222 adolescents, and 124 were teachers. As shown in Table 1, children are more susceptible to mental health problems than adolescents because they are afraid of COVID-19 infection, frustration, boredom, and being alone without parents and companions⁶. The scores of stress, anxiety and depression of children higher than each score of adolescents ($p < 0.05$). When the free sports place was closed and confined, the psychosocial stress of children was easily affected. The age of the initial separation is related to the risk of psychological problems in line with pandemic-related restrictions⁷. For children, although there are no significant difference between anxiety and depression, the stress score of girls (2.13) are higher than boys (1.56, $p < 0.05$). In addition, teachers have higher psychosocial stress than students. Because teachers may have experienced multi-stress during the isolation period, they not only made many efforts to alleviate students' stress and satisfied their needs in collective centers but also overcame the fear of COVID-19 infection and worry about the economic crisis in the postepidemic era. Meanwhile, it is difficult for teachers to show stress, depression and anxiety to protect

their dignity in front of students and other people. For adolescent and teachers, the stress scores were highest, followed by anxiety and depression. This is because the isolation time for people was only three weeks and the psychological problem was exocentric, and we supposed that along with the time extension, anxiety and depression would appear.

For physical symptoms, eighty-two people (20.4%) had insomnia symptoms or poor sleep, and others had mild cold symptoms, such as Nasal congestion, stuffy nose, conscious fever and body pain (Table 2). These clinic symptoms were closely related to the mental disorder of participants. We noticed that 44 teachers have the insomnia symptom with the incidence of 35.48%, which higher than adolescent (16.22%) and children (2.36%), which related to their experienced multi-stress and the imagination overnight, however, the insomnia symptom also results in the serious psychosocial status. Although children are causing the mental problems, the incidence of insomnia is least. We thought that this status of children is corresponding to their physiological characteristics and good habit, they have longer sleep time than adult.

In this study, although the government carried out great efforts to prevent the potential mental health problems of people who are quarantined in collective observation centers^{8,9}, the psychosocial disorders still appeared during the COVID-19 outbreak. Parents, companions, doctors, psychotherapists, and community volunteers should all participate in work to protect the mental health of children and alleviate the discomfort symptoms, and the specific strategies should be considered to improve psychosocial status and sleep according to their age, sex and causes. The stress of children in the post-epidemic era should also be given more attention. In addition, as adults, the mental problems and sleep of teachers have been neglected to some degree and should be prevented using the psychological intervention strategies in response to COVID-19.

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Declaration of Competing Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Table 1

Mental health of children and adolescents quarantined during the COVID-19 outbreak.

Age	Students Children (7–12 years old)			Adolescents (13–18 years old)			Teachers (> 18 years old)		
	Male	Female	Mean	Male	Female	Mean	Male	Female	Mean
Sex									
No. Of Cases	25	30	55*	36	186	222*	57	67	124*
Scores									
Stress	1.56 ± 1.63	2.23 ± 2.43	1.93 ± 2.12	1.61 ± 1.57	1.51 ± 1.66	1.53 ± 1.65	2.86 ± 2.44	3.16 ± 2.38	3.02 ± 2.40
Anxiety	2.16 ± 0.62	2.10 ± 0.93	2.13 ± 0.79	1.33 ± 0.63	1.30 ± 0.82	1.31 ± 0.79	2.28 ± 1.15	2.63 ± 1.50	2.47 ± 1.59
Depression	2.16 ± 0.48	2.00 ± 1.26	2.07 ± 0.98	0.78 ± 1.27	0.65 ± 1.24	0.67 ± 1.25	1.98 ± 1.46	2.06 ± 1.70	2.02 ± 1.59

*represents the sum of cases.

Table 2

The physical symptoms of participants.

Physical symptoms	Children (7–12 years old) N = 55	Adolescents (13–18 years old) N = 222	Teachers (> 18 years old) N = 124	No. of cases (401)
Conscious fever	2 (3.6%)	14 (6.3%)	1 (0.8%)	17 (4.2%)
Fatigue	0	3 (1.4%)	3 (2.4%)	6 (1.5%)
Headache	0	3 (1.4%)	7 (5.6%)	10 (2.5%)
Body pain	0	7 (3.2%)	9 (7.3%)	16 (4.0%)
Cough	0	1 (0.5%)	0	1 (0.3%)
Expectoration	1 (1.8%)	1 (0.5%)	1 (0.8%)	3 (0.7%)
Gasp	0	1 (0.5%)	2 (1.6%)	3 (0.7%)
Pharyngeal xeransis	0	3 (1.4%)	6 (4.8%)	9 (2.2%)
Nasal congestion	4 (7.3%)	19 (8.6%)	9 (7.3%)	33 (8.2%)
Snotty	3 (5.4%)	23 (10.36%)	4 (3.2%)	30 (7.5%)
Anorexia	1 (1.8%)	4 (1.8%)	2 (1.6%)	7 (1.7%)
Abdominal distension	0	0	2 (1.6%)	2 (0.5%)
Dyspnea	0	2 (0.9%)	3 (2.4%)	5 (1.3%)
Insomnia	2 (3.6%)	36 (16.22%)	44 (35.48%)	82 (20.4%)

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