INTRODUCTION

Compared with the severe acute respiratory syndrome (SARS)-CoV and middle east respiratory

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syndrome (MERS)-CoV, COVID-19 are more contagious,[1] which makes early quarantine and treatment become necessary and effective measures.[2] The epidemic is different from the previous major public health events in that it is highly infectious and widely influenced. When SARS, MERS broke out, it is medical staff and patients who were under the greatest strains.[3-5] Other uninfected people belong to the unaffected population, and few studies have investigated their mental health level. In this epidemic, uninfected people are home-quarantined, and their daily and emotional states are also directly affected by the epidemic. Most studies have reported that in a viral infectious epidemic, the psychological effects due to social isolation include posttraumatic stress symptoms, confusion and anger, and some effects persist for a period of time.[6]

Therefore, in this outbreak, we not only need to understand the psychological status of patients and front-line rescuers, but also take notice of a large number of uninfected people in noncore areas of the epidemic. Specifically, the families of the front-line rescuers caught our attention. Due to the shortage of supplies and limited knowledge of the virus, rescuers are faced with greater unknown risks.[7] Family member of frontline rescuers, apart from worrying about their own risk of infection, are separated from families in frontline at this critical period and concerned about their situation. Meanwhile, as family members go to the frontline, their daily lives are also affected to varying degrees, and hence, their attention to the epidemic may change, which may also increase their psychological pressure. According to our mental health survey of frontline medical staff, the safety of family members significantly affects their mental health (data has not been published). Therefore, it is indispensable to study the psychological status of the family members of frontline workers (medical staff, civilian police, community investigators, cleaning staff, management personnel, etc.), so as to help them more pertinently and indirectly aid front-line rescuers, which is an important factor to ensure rescuers’ mental health.

MATERIALS AND METHODS

Study design and participants

After the outbreak of COVID-19, on February 27, 2020, we sent electronic links to the families of frontline rescue workers (including frontline doctors, nurses, medical technicians, rear-service personnel, community street investigators, cleaners, volunteers, public security, traffic police, managers, etc.) through WeChat. The questionnaire first introduces the purpose of our research and after participating in the evaluation, we promise to give a psychological analysis report. After reading carefully, the subjects voluntarily chose whether or not to participate in the survey. On March 1, 2020, we received a total of 671 valid questionnaires. The study was approved by the Ethics Committee of the Second Xiangya Hospital of Central South University.

Questionnaire measures

Self-made questionnaire

The questionnaire includes two parts. One part is demographic data (gender, age, occupation, education, place of residence, kinship with frontline rescue workers, family size).

In the other part, we investigated the situation related to the frontline rescue workers, including the occupation and frontline support time of the frontline rescue family members, and the degree of impact on the subjects’ daily life, raising children, and supporting the elderly during this period, as well as the degree of worry about the safety, physical conditions, supplies and other aspects of the first-line rescue relatives the attention to the epidemic information, what support the frontline rescue units gave to the subjects, what they care most about the epidemic, what they most want to do after the epidemic, and what kind of support the units of the first-line rescuers gives them.

Percieved Stress Scale-10

Percieved Stress Scale (PSS-10) asked subjects how often they felt or thought about the 10 items in the scale over the past month (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often). It contains 4 positive items, which need to be scored in reverse, and then add up the scores of all 10 items. The higher the total score, the higher the level of stress you feel.[8]

10-items Connor-Davidson Resilience Scale

Ten-items Connor-Davidson Resilience Scale (CD-RISC-10) is a simplified version of the psychological resilience scale with good reliability and validity.[9,10] It asked subjects how they felt about the given item over the past month. The answer range is 0 (“not true at all”), 1 (“rarely true”), 2 (“sometimes true”), 3 (“often true”), and 4 (“true nearly all of the time”), with a total of 40 points.

Generalized Anxiety Disorder-7

Generalized Anxiety Disorder-7 (GAD-7) is an effective tool for screening anxiety symptoms and assessing their severity in clinical and research.[11] It asked patients to choose how often they were plagued by each symptom in the last 2 weeks, (“not at all”), (“a few days”), (“more than half of the days”) and (“almost every day”) on a score of 0, 1, 2, and 3, respectively, for a total of 21 points. ≥5, 10 and 15 can represent mild, moderate, and severe anxiety levels.

Patient Health Questionnaire-2

Patient Health Questionnaire-2 (PHQ-2) is a reliable and effective self-rating scale for screening depressive symptoms. Participants are asked to rate the frequency
of symptoms in the past 2 weeks according to 0 (“none at all”), 1 (“a few days”), 2 (“more than half of the days”), 3 (“almost daily”), with a total score of 0–6. It is recommended that the cutoff value be 3 points.12

Primary Care Posttraumatic stress disorder Screen for DSM-5
Primary Care Posttraumatic stress disorder Screen for DSM-5 (PC-PTSD-5) is a 5-item screen that was designed for use in primary care settings. PC-PTSD-5 contains 5 items, using a binary (yes/no) answer format with a score of 1 (“yes”) and 0 (“no”). Using 4 as a cutoff score can balance false negative and false-positive results.13

Sleep status and suicidal thoughts
Two separate items from PHQ-9 were set up to assess subjects’ sleep and suicidal thoughts. Participants are asked to rate the frequency of symptoms in the past 2 weeks according to 0 (“none at all”), 1 (“a few days”), 2 (“more than half of the days”), 3 (“almost daily”).

Statistical analysis
The collected data were processed by IBM (American company) SPSS Statistics for Windows (version 25.0). Descriptive statistics were used to analyze the data to understand the centralized and discrete trends of the scores in PSS, CD-RISC-10, GAD-7, PHQ-2, PC-PTSD-5, and other scales. After that, we analyzed the correlation between the scores of different scales and found the correlation between stress level, psychological resilience, and symptoms. Then, according to the score of the scale, the subjects were divided into different symptom grades, and the Chi-square test was used to analyze the possible relationship between the detection rate of the severity of symptoms and the characteristics of the patients. The posttest is performed when the overall Chi-square test is meaningful, and calculate the adjusted standardized residuals (ASR), to find out which cells in the contingency table contribute the most to the Chi-square value. When the ASR is >2, we think that there is a statistically significant difference between the observed frequency and the expected frequency.14 Since the expected frequency of some cells in the Chi-square test is <5, we use exact significance, which is always reliable regardless of the size or distribution of the data.15

RESULTS

Demographic characteristics
Table 1 shows the demographic data. A total of 671 people completed the questionnaire, including 362 women and 309 men. Among them, 194 (28.9%) were husbands/wives of front-line rescue workers, 52 (7.7%) were parents, 49 (7.3%) were children, 76 (11.3%) were brothers and sisters, and 300 (44.7%) were in other relationships.

Front-line rescue workers include 93 front-line doctors (13.9%), 179 nurses (26.7%), 31 medical technicians (4.6%), 82 rear-service personnel (12.2%), 99 community street inspection personnel (14.8%), 20 cleaning staff (3.0), 78 volunteers (11.6%), 30 police (4.5%), and 59 managers (8.8%).

There were 91 (13.6%) subjects reported that the first-line rescue time of their relatives was <1 week, 97 (14.5%) was 1–2 weeks, 119 (17.7%) was 2–3 weeks, and 245 (36.5%) was >1 month.

Severity of measurement
Levels of psychological symptoms among relatives of Frontline workers against COVID-19
The average score of GAD-7 was 4.88 ± 4.57. The GAD-7 scores of 0–4 (no anxiety), 5–9 (mild anxiety), 10–14 (moderate anxiety), and ≥15 (severe anxiety) were 342 (51.0%), 236 (35.2%), 67 (10.0%), and 26 (3.9%) respectively, that is, 49.0% of the family members of the front-line staff showed mild or more anxiety symptoms.

Table 1: Demographic statistics

| Demographic characteristics (n=671) | n (%) |
|-----------------------------------|-------|
| Sex                               |       |
| Male                              | 309 (46.1) |
| Female                            | 362 (53.9) |
| Age                               |       |
| <18                               | 9 (1.3)  |
| 18-25                             | 69 (10.3) |
| 26-30                             | 94 (14.0) |
| 31-40                             | 182 (27.1) |
| 41-50                             | 202 (30.1) |
| 51-60                             | 92 (13.7) |
| >60                               | 23 (3.4)  |
| Kinship                           |       |
| Parents                           | 52 (7.7) |
| Couple                            | 194 (28.9) |
| Children                          | 49 (7.3) |
| Sibling                           | 76 (11.3) |
| Others                            | 300 (44.7) |
| Number of permanent residents in the family | |
| 1                                 | 24 (3.6) |
| 2                                 | 110 (16.4) |
| 3                                 | 225 (33.5) |
| 4                                 | 136 (20.3) |
| 5                                 | 117 (17.4) |
| 6                                 | 59 (8.8) |
| First-line rescue time            |       |
| <1 week                           | 91 (13.6) |
| 1-2 weeks                         | 97 (14.5) |
| 2-3 weeks                         | 119 (17.7) |
| 3-4 weeks                         | 119 (17.7) |
| >1 month                          | 245 (36.5) |
| Frontline work                    |       |
| Nurses                            | 179 (26.7) |
| Doctors                           | 93 (13.9) |
| Police                            | 30 (4.5) |
| Managers                          | 59 (8.8) |
| Rear-service personnel            | 82 (12.2) |
| Community street inspector        | 99 (14.8) |
| Cleaning staff                    | 20 (3.0) |
| Medical technicians               | 31 (4.6) |
| Volunteers                        | 78 (11.6) |
The average score of PHQ-2 is 1.13 ± 1.35. Of the 671 subjects surveyed, 82 reported clinically significant depressive symptoms, accounting for 12.2%.

The average score of PC-PTSD was 0.97 ± 1.55, of which 0–3 (no PTSD) and ≥4 (possible PTSD) were 601 (89.6%) and 70 (10.4%), respectively.

With regard to sleep, 302 (45.0%) had no sleep problems in the past month, 274 (40.8%) had sleep problems in a few days in the past month, 66 (9.8%) had sleep problems for more than half of the days in the past month, and 29 (4.3%) had sleep problems almost every day. Overall, 55.0% of the family members of front-line workers have mild or more sleep disorders.

With regard to self-injury or suicidal thoughts, 615 (91.7%) had no self-injury or suicidal thoughts in the past month, 46 (6.9%) reported a few days of self-injury or suicidal thoughts, 4 (0.6%) reported self-injury or suicidal thoughts on more than half of the days in the past month, and 6 (0.9%) reported self-injury or suicidal thoughts almost every day. Overall, 8.3% of the family members of front-line staff had self-injury or suicidal thoughts in the past month.

**Correlation analysis**

Table 2 showed the correlation between measurements. The score of PSS was negatively correlated with the score of CD-RISC-10 (r = 0.425, P < 0.001), positively correlated with the score of GAD-7 (r = 0.481, P < 0.001) and PHQ-2 (r = 0.490, P < 0.001), but not correlated with the scores of PC-PTSD-5, somatic symptoms, sleep items and suicide items (r < 0.3). However, the correlation analysis between the CD-RISC-10 scale and other scales was not significant.

**Univariate analysis**

Chi analysis of sociological data and severity of symptoms

**Family size and symptoms**

We analyzed whether there were any differences in the symptoms of the subjects with 1–2 (134, 20.0%), 3–4 (361, 53.8%), 5–6 (176, 26.2%) persons in the family, and found that the number of persons in the family was significantly related to sleep problems (χ² = 13.384, df = 2, P = 0.001). For the subjects with 1–2, 3–4, and 5–6 family persons, 31 (23.1%), 49 (13.6%), 15 (8.5%), respectively, had sleep problems for more than half of the days in the past month. Participants with 1–2 people in the family had more severe sleep problems than 3–4 and 5–6 (ASR = 3.3).

**Worry about front-line workers and symptoms**

According to Table 3, subjects who were relatively or very worried about the safety of their front-line families (506 people, accounting for 75.4% of the total) versus those who were not worried or slightly worried (165 persons, 24.6% of the total), 86 (17.0%) versus 9 (5.5%) (χ² = 13.638, P < 0.001) had sleep problems on more than half of the days in the past month and 60 (11.9%) versus 10 (6.1%) showed obvious PTSD symptoms (χ² = 4.475, P = 0.039). The degree of concern about the safety of front-line personnel was not significantly associated with anxiety, depression, and suicidal thoughts.

Subjects who were relatively or very worried about the physical condition of their front-line family members (a total of 479, accounting for 71.4%) versus did not worry or slightly worried (a total of 192, accounting for 28.6%), with depressive symptoms were 67 (14.0%) versus 15 (7.8%) (χ² = 4.872, P = 0.027) and 79 (16.5%) versus 16 (8.3%) had sleep problems on more than half of the days in the past month (χ² = 7.508, P = 0.007). The degree of worry about the physical condition of front-line staff was not significantly associated with anxiety, PTSD, and suicidal thoughts.

Subjects who were relatively or very worried about the supplies of their front-line families (a total of 309, accounting for 46.1%) versus were not worried or slightly worried (362, accounting for 53.9%), with moderate and severe anxiety symptoms was 55 (17.8%) versus 38 (10.5%) (χ² = 7.445, P = 0.007), with depressive symptoms was 47 (15.2%) versus 35 (9.7%) (χ² = 4.773, P = 0.033), and 56 (18.1%) versus 39 (10.8%) had sleep problems on more than half of the days (χ² = 7.409, P = 0.008), 8 (2.6) versus 2 (0.6) had suicidal thoughts for more than half of the days (χ² = 7.409, P = 0.008), and with moderate or severe anxiety symptoms was 51 (18.9%) versus 42 (10.5%) (χ² = 9.571, P = 0.003), and with depressive symptoms was 45 (16.7%) versus 37 (9.2%) (χ² = 8.326, P = 0.005), with sleep problems for more than half of the days in the past month was

| Table 2: Pearson correlation |
|-----------------------------|
|                  | PSS  | CD-RISC | GAD-7 | PHQ-2 | PC-PTSD | Sleep item |
|-----------------------------|------|---------|-------|-------|---------|------------|
| CD-RISC                   | -0.425 |        |       |       |         |            |
| GAD-7                      | 0.481  | -0.182  |       |       |         |            |
| PHQ-2                      | 0.490  | -0.268  | 0.694 |       |         |            |
| PC-PTSD-5                  | 0.263  | -0.222  | 0.269 | 0.266 |         |            |
| Sleep item                 | 0.349  | -0.110  | 0.410 | 0.391 | 0.260   | 0.218      |
| Suicide item               | 0.192  | -0.188  | 0.182 | 0.286 | 0.218   | 0.244      |

All P < 0.001. PSS – Perceived Stress Scale; CD-RISC – Connor-Davidson Resilience Scale; GAD-7 – Generalized Anxiety Disorder-7; PHQ-2 – Patient Health Questionnaire-2; PC-PTSD – Primary Care PTSD Screen for DSM-5; PTSD – Posttraumatic stress disorder; DSM-5 – Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
Table 3: Worry about frontline workers and symptoms, Chi-square analysis

| Anxiety symptoms | Non to mild, n (%) | Moderate to severe, n (%) | P (df=1) | | | Non to mild, n (%) | Moderate to severe, n (%) | P (df=1) | | | Non to mild, n (%) | Moderate to severe, n (%) | P (df=1) |
|------------------|-------------------|---------------------------|---------| | |------------------|---------------------------|---------| | |------------------|---------------------------|---------| |
| Non to mild | 147 (89.1) | 431 (85.2) | 0.243 | | | 171 (89.1) | 407 (85.0) | 0.176 | | | 324 (89.5) | 254 (82.2) | 0.007† |
| Moderate to severe | 18 (10.9) | 75 (14.8) | | | | 21 (10.9) | 72 (15.0) | | | | 38 (10.5) | 55 (17.8) | |
| Depressive symptoms | | | | | | | | | | | | | |
| Asymptomatic | 152 (92.1) | 437 (86.4) | 0.055 | | | 177 (92.2) | 412 (86.0) | 0.027* | | | 327 (90.3) | 262 (84.8) | 0.033* |
| Symptomatic | 13 (7.9) | 69 (13.6) | | | | 15 (7.8) | 67 (14.0) | | | | 35 (9.7) | 47 (15.2) | |
| PTSD | | | | | | | | | | | | | |
| Asymptomatic | 155 (93.9) | 446 (88.1) | 0.039* | | | 177 (92.2) | 424 (88.5) | 0.208 | | | 338 (93.4) | 263 (85.1) | 0.001† |
| Possible PTSD | 10 (6.1) | 60 (11.9) | | | | 15 (7.8) | 55 (11.5) | | | | 24 (6.6) | 46 (14.9) | |
| Sleep disturbance | | | | | | | | | | | | | |
| <Half of the days | 156 (94.5) | 420 (83.0) | | | | 176 (91.7) | 400 (83.5) | 0.007† | | | 323 (89.2) | 253 (81.9) | 0.008† |
| ≥Half of the days | 9 (5.5) | 86 (17.0) | | | | 16 (8.3) | 79 (16.5) | | | | 39 (10.8) | 56 (18.1) | |
| Suicidal thoughts | | | | | | | | | | | | | |
| <Half of the days | 163 (98.8) | 498 (98.4) | 1.000 | | | 190 (99.0) | 471 (98.3) | 0.732 | | | 360 (99.4) | 301 (97.4) | 0.050* |
| ≥Half of the days | 2 (1.2) | 8 (1.6) | | | | 2 (1.0) | 8 (1.7) | | | | 2 (0.6) | 8 (2.6) | |

*Ps<0.05; †Ps<0.01; ‡Ps<0.001. PTSD – Posttraumatic stress disorder

Table 4: Influence of life and symptoms, Chi-square analysis

| Impact on their daily life | Non to mild, n (%) | Moderate to severe, n (%) | P (df=1) | Impact on raising children and supporting the elderly | Non to mild, n (%) | Moderate to severe, n (%) | P (df=1) |
|---------------------------|-------------------|---------------------------|---------|-------------------------------|-------------------|---------------------------|---------|
| Anxiety symptoms | | | | | | | | |
| Non to mild | 359 (89.5) | 219 (81.1) | | 375 (89.9) | 203 (79.9) | | <0.001† |
| Moderate to severe | 42 (10.5) | 51 (18.9) | | 42 (10.1) | 51 (20.1) | | |
| Depressive symptoms | | | | | | | | |
| Asymptomatic | 364 (90.8) | 225 (83.3) | | 381 (91.4) | 208 (81.9) | | <0.001† |
| Symptomatic | 37 (9.2) | 45 (16.7) | | 36 (8.6) | 46 (18.1) | | |
| PTSD | | | | | | | | |
| Asymptomatic | 377 (94.0) | 224 (83.0) | | 389 (93.9) | 212 (83.5) | | <0.001† |
| Possible PTSD | 24 (6.0) | 46 (17.0) | | 28 (6.7) | 42 (16.5) | | |
| Sleep disturbance | | | | | | | | |
| <Half of the days | 363 (90.5) | 213 (78.9) | | 378 (90.6) | 198 (78.0) | | <0.001† |
| ≥Half of the days | 38 (9.5) | 57 (21.1) | | 39 (9.4) | 56 (22.0) | | |
| Suicidal thoughts | | | | | | | | |
| <Half of the days | 400 (99.8) | 261 (96.7) | | 415 (99.5) | 246 (96.9) | | 0.008† |
| ≥Half of the days | 1 (0.2) | 9 (3.3) | | 2 (0.5) | 8 (3.1) | | |

*Ps<0.05; †Ps<0.01; ‡Ps<0.001. PTSD – Posttraumatic stress disorder

57 (21.1%) versus 38 (9.5%) (χ² = 17.972, P < 0.001), and 9 (3.3%) versus 1 (0.2%) had suicidal thoughts (χ² = 10.453, P = 0.002), 46 (17.0%) versus 24 (6.0%) showed obvious PTSD symptoms (χ² = 21.093, P < 0.001).

During the period of front-line support, subjects who had much or very much influence on raising children and supporting the elderly (254 persons, accounting for 37.9%) versus had no or slight influence (417 persons, 62.1% of the total), with moderate and severe anxiety symptoms was 51 (20.1%) versus 42 (10.1%) (χ² = 13.240, P < 0.001), with depressive symptoms was 46 (18.1%) versus 36 (8.6%) (χ² = 13.217, P < 0.001), with sleep problems for more than half of the days in the past month was 56 (22.0%) versus 39 (9.4%) (χ² = 20.931, P < 0.001) and 8 (3.1%) versus 2 (0.5%) had suicidal thoughts for more than half of the days in the past month (χ² = 7.665, P = 0.008), 42 (16.5%) versus 28 (6.7%) showed obvious PTSD symptoms (χ² = 16.293, P < 0.001).

Chi analysis of sociological data and preference of concern and support

With regard to the subjects’ attention to the information of the epidemic, the top three were the end time of the epidemic (579, accounting for 86.3%), the return time of their families (464, accounting for 69.2%), and the number of infections and deaths among health care workers (317, accounting for 47.2%). After the epidemic, the top three things that families most want to do are more companionship and concern for their families (366, accounting for 54.5%), enhanced exercise (351, accounting for 52.3%), and family gatherings (350, accounting for 52.2%).
We asked what kind of help the front-line rescue units gave to the subjects. 326 (48.6%) reflected the phone greetings of the unit, 304 (45.3%) reported that the unit gave material supply help, 233 (34.7%) reported that the unit gave help in epidemic prevention, and 101 (15.1%) reflected the help given by the unit to the children’s education.

**DISCUSSION**

The survey found that during the outbreak of the COVID-19, 55% of the family members reported sleep problems, 49.0% of the family members had mild and above anxiety symptoms, 12.2% of the family members reported clinically significant depression symptoms, and 10.4% of the family members may have PTSD. 8.3% of family members had thoughts of self-injury or suicide. The psychological problems of family members of front-line rescue workers in this epidemic were mainly sleep disturbance and anxiety.

We analyzed the relationship between stress perception, psychological resilience, and various symptoms, finding that anxiety and depression were significantly correlated with the stress perception degree of the subjects, but not with mental resilience. A year after the outbreak of SARS, the pressure felt by medical staff during the epidemic retained after 1 year.$^{[19]}$ As a family member of front-line rescuers, their stress perception should be valued in prevention of chronic stress. Therefore, in this epidemic, for the psychological intervention of the families of first-line rescuers, our focus is to help them relieve stress and relax.

We are aware that stress and worry significantly affect our sleep.$^{[17,18]}$ which was also found in our survey. For the family members who participated in the survey, they most worried safety of first-line rescuers, followed by their physical condition, and then, their grocery supplies. Family members’ concerns about the safety, physical condition, and daily supplies of rescuers are all related to the severity of sleep disorders. Conspicuously, alleviating levels of worry of family members is an important measure to improve the mental status and psychological symptoms. Informing family members about the general work content, intensity, and risks of rescuers may be an effective measure since sufficient information can appropriately alleviate concerns.$^{[19,20]}$ In addition, we also learned that the sleep problems of subjects in 1–2 people family are more serious than those with 3–4 and 5–6 people in the family. This may be related to the reduction in face-to-face communication among individuals with a small resident population and friends and relatives during the quarantine. It can be seen that family and social support play a very important role in relieving stress and improving mood during the epidemic.

Nearly half of the family members reported that their daily lives and the effects of raising children and supporting the elderly were affected in different ways. The degree of impact is associated with anxiety, depression, PTSD, sleep, and suicidal thoughts. This may remind us that when rescuers risk their lives in the front line, society cannot ignore the supports for their families. In terms of support, we have also learned that the support provided by the work unit is mainly telephone greetings and virus prevention materials, but still, the coverage rate is less than half, so that the work in this area still needs to be strengthened. During the first-line support, the negative emotions of medical staff are partly due to concerns and concerns about their families, and the support of the family and the team can bring them happiness.$^{[21]}$ Therefore, to provide sufficient material and psychological support for the family members, from another perspective, is also to eliminate the worries of the first-line rescue workers, and indirectly provide psychological support for the first-line rescue workers.

Finally, we learned that the top three family members’ concerns about the epidemic information is the time when the epidemic ends, the time when family returns, and the progress of treatment of COVID-19. Extending the time of postepidemic vacation of rescuers enables them to have plenty of time keeping their families accompany, which will be extremely helpful to their mental health.

**CONCLUSIONS**

The psychological impact of this epidemic on the families of first-line rescuers is mainly the sleep problems and anxiety. The stressor-perceptive level is the main related factor of family members’ anxiety and depression symptoms. Worries about the safety, physical condition, and daily supplies of first-line rescue workers are the main reasons for the family’s psychological distress. The therapy for family members mainly aims to relieve stress. At the same time, material and spiritual support for first-line rescuers are extremely vital in alleviating family members’ worry.

**Limitations**

The main shortcoming of this study is that this is a cross-sectional study, and we have no way to get to know the fluctuation of the psychological distress level of the family members at different time points during the epidemic. Second, the sample size of this study is relatively small.

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**Conflicts of interest**

There are no conflicts of interest.
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