

How Tunisian physicians of public health hospitals deal with COVID-19 pandemic: Perceived stress and coping strategies

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On 2 March 2020, the first COVID-19 case was reported in Tunisia.¹ On 12 March 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. This pandemic was unprecedented for Tunisians. Tunisian authorities quickly took lockdown measures by establishing general containment on 20 March.

Public hospitals, the only institutions authorized to receive COVID-19 patients, had to implement a brutal reorganization of health activities. Physicians had to deal with a sudden change in work organization and way of life (e.g., shifts, sorting and screening of patients, post-shift containment at hospital). This may have caused stress and adaptation efforts. Indeed, communicable disease outbreaks can have an impact on healthcare workers as a result of increased workload, uncertainty about the pathogenicity of the causative agent, and anxiety about becoming infected.^{2, 3} Several studies have highlighted the psychological impact of COVID-19 among physicians.^{4, 5} In Tunisia, there are no available publications about the stress experience and the coping strategies among health workers. Yet, these aspects have a major impact on prevention and care strategies for physicians.

This study aimed to examine the impact of COVID-19 on the stress and coping strategies of Tunisian physicians working at public health hospitals during the pandemic. After giving informed consent, participants anonymously took a Web-based survey between 18 March and 28 May 2020, which was approved by Razi Hospital Ethics Committee. A semi-structured questionnaire was performed, based on previous studies.^{2, 4, 6} We requested information about sociodemographic and professional characteristics, and perceptions and concerns about the COVID-19 pandemic. We used the French 10-item version of the Perceived Stress Scale (PSS-10),⁷ and the French version of the Brief COPE Inventory to assess coping strategies. Items were grouped in four dimensions: Social Support, Problem-Solving, Avoidance, and Positive Thinking.⁸ We used the Pearson correlation test (r), the Student's t -test for independent-samples, and the analysis of variance test. The significance threshold was fixed to $P < 0.05$.

The sample consisted of 191 physicians. The average age was 33 years (SD = 7.9) and 80.9% were female. One hundred and nine (57.06%) were physicians in training. We divided the sample into three groups according to the field: medical (82.1%), surgical (10.9%), and emergency (6.2%). A total of 156 physicians (81.6%) worked in hospitals in the north, 22 (11.5%) in the center, and 12 (6.2%) in the south of the country. Physicians' mean duration of medical practice was 8 years (range: 0.5–37 years). Direct contact with COVID-19 patients was reported by 26.3% of physicians. More than half of the participants (56.7%) responded that their department had taken appropriate crisis-response measures. Only 35% considered these measures sufficient and 33.5% felt safe taking care of patients. Their main sources of information during the pandemic were the official Tunisian sources (65.5%); however,

only 45.4% considered that the national guidelines for the management of COVID-19 were clear.

The mean score on the PSS-10 was 28.86 (SD = 6.19) and 92.14% reported moderate to severe stress perception. Females scored significantly higher (29.65, SD = 5.9) than males (25.53, SD = 6), $P < 10^{-3}$. Physicians in training had higher scores (29.68, SD = 5.8) than seniors (27.8, SD = 6.5), $P = 0.039$. Age was significantly negatively correlated with PSS-10 score ($P = 0.011$, $r = 0-1.86$). We found no significant effect of having direct contact with COVID-19 patients on stress ($P = 0.74$). The field of practice was not associated with stress ($P = 0.24$).

Physicians who trusted the national police management of the COVID-19 outbreak were significantly less stressed (27.70, SD = 5.75) than others (29.74, SD = 6.39), $P = 0.026$.

Mean scores for Social Support, Problem-Solving, Avoidance, and Positive Thinking were, respectively, 15.47 ± 2.67 , 7.82 ± 1.9 , 21.47 ± 2.92 , and 13 ± 2.2 . Stressed physicians used significantly more social support ($r = 0.216$, $P = 0.003$), problem-solving ($r = 0.23$, $P = 0.001$), and less avoidance ($r = -0.33$, $P < 10^{-3}$) to cope with the pandemic. We found no association between coping strategies and sex, age, or being in training status.

The main finding of our study was the high score of stress among female and young physicians in training. We found that a high level of stress was positively correlated with social support and resolving problems, and negatively with avoidance. Taking account of potential social desirability bias related to self-assessment methods, our participants seemed to adopt appropriate coping strategies, although they reported more perceived stress than other studies using the same⁹ or other instruments.^{4, 5} Stressed physicians in our sample had less trust for national police management of the COVID-19 outbreak.

Our findings highlight the necessity to focus on physicians' well-being, especially those who are female and/or young. A medium-term assessment of the impact of the epidemic would be beneficial.

Disclosure statement

There is no conflict of interest.

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Relationship between parenting stress and school closures due to the COVID-19 pandemic

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COVID-19 has spread rapidly throughout the world and there is increased risk of child maltreatment and domestic violence due to its spread.^{1, 2} One reason for this is that school closures force children to stay at home for longer durations, which may increase parenting stress. In Japan, all schools nationwide were temporarily closed starting on 2 March 2020. Many children had remained at home at least until the end of April 2020. The purpose of this study was to quantify parenting stress, and to understand the qualitative structure of parenting stress through textual analysis during this unprecedented situation.

The sample included 353 parents aged 23–58 years (mean = 37.60 years, SD = 6.11 years; 78 males, 273 females, and two sexes unknown). The mean age of the eldest child was 8.04 years (SD = 4.62 years, range = 0–18 years), and the mean age of the youngest child was 6.11 years (SD = 4.66 years, range = 0–18 years). All information gathered was processed anonymously. The study protocol and all procedures were approved by the Ethics Committee of the University of Fukui, Japan (Assurance # FU-20200007). The survey was conducted entirely on the Web between 29 and 30 April 2020. All participants were recruited using Crowdsworks (a crowdsourcing service in Japan). Participants saw the advertisement and applied to participate using the crowdsourcing service. We then sent the survey questionnaire form to participants who met the requirements for participation (living with their children aged 0–18 years who were under school closure). Informed consent for participation was obtained from all participants prior to starting the survey.

The Parenting Stress Index – Short Form (PSI-SF)³ was used to measure parenting stress; this is composed of 36 items with a Likert-type answer format of five options. We adapted a bifactorial structure (the Parental Distress subscale and the Childrearing Stress subscale) based on a recent validation study.⁴ Participants were asked to complete the PSI-SF twice. First, the participants answered the PSI-SF without any particular instructions. Following completion, they were then asked to complete the PSI-SF again, recalling what it was like before the school closures had begun. In addition to the PSI-SF, participants were asked if it would be possible to handle parenting-related stress if the school closures continued into the future using a single item. This result is reported in Appendix S1. Personal distress scores reported on the PSI-SF before school closures and after school closures were 2.39 (SD = 0.80, min. = 1.00, max. = 4.58, sum = 29.89) and 2.49 (SD = 0.72, min. = 1.00, max. = 4.83, sum = 28.75), respectively. Parents' current personal distress levels were significantly higher ($t = 4.89$, $P < 0.01$, $d = 0.12$) than before the school closures had occurred. Additionally, childrearing stress scores before school closures and after school closures were 2.09 (SD = 0.64, min. = 1.04, max. = 4.04, sum = 50.08) and 2.21 (SD = 0.58, min. = 1.08, max. = 4.08, sum = 53.08),

respectively. Current (i.e., after school closures) childrearing stress scores were significantly higher ($t = 9.17$, $P < 0.01$, $d = 0.20$) than before school closures had occurred. Finally, total parenting-stress scores before and after school closures were 2.24 (SD = 0.66, min. = 1.02, max. = 4.40, sum = 80.69) and 2.35 (SD = 0.61, min. = 1.08, max. = 4.29, sum = 84.64), respectively. Current (i.e., after school closures) total parenting stress scores were significantly higher ($t = 7.79$, $P < 0.01$, $d = 0.17$) than before school closures had occurred.

Participants were asked to freely describe what types of stress they felt about parenting. In addition to the above questions, participants were asked to describe what they were doing or devising to relieve the parenting stress mentioned above. Co-occurrence network analyses⁵ were conducted for both questions. First, 626 words were extracted regarding parenting stress. A co-occurrence network analysis was performed using the most common 30 words that appeared. The results are visually depicted in Figure S1 in Appendix S1. Next, 540 words were extracted from the second open-ended question regarding methods of relieving parenting stress. A co-occurrence network analysis was conducted using the 30 most common words. Figure S2 in Appendix S1 visually depicts the co-occurrence network.

In conclusion, we found that there was a significant increase in parenting stress, as reported on the PSI-SF. One strength of this study is that it allows for future longitudinal and comparative studies between different regions to assess parenting stress using a globally used scale. The results demonstrated by the PSI-SF in this study will serve as a meaningful comparator for future fundamental research on this topic. The inclusion of qualitative descriptive data allowed us to understand specific aspects of parenting stressors. Specifically addressing these issues through local and national policies may help in relieving parenting stress during this pandemic. In addition, we were able to obtain ideas about effective coping methods that could be practiced at individual and household levels. Disseminating these strategies is expected to increase resilience to parenting stress in households during this time. However, it is possible that some families may find it difficult to implement such solutions due to their individual circumstances. These families will need additional support from local governments and the private sector.

One of the limitations of this study is that the PSI-SF rating before the school closure was obtained using a retrospective method. Most of the participants that completed this survey, however, agreed to participate in a subsequent survey. In the future, we plan to conduct this study longitudinally. We believe that these efforts will help parents cope with stress during the COVID-19 pandemic.

Disclosure statement

The authors declare no conflict of interest.

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