

# Preserving Resilience for Prevention of Burnout in Anesthesiology Residents as Frontline Healthcare Workers During the COVID-19 Outbreak: A Report of Real-Life Experiences of Professionalism and Mentoring in Medical Education

Shahram Samadi; M.D., Zahid Hussain Khan; M.D., Seyed Mohamad Mireskandari; M.D., Kasra Karvandian; M.D., Afshin Jafarzadeh; M.D., Asghar Hajipour; M.D.

Department of Anesthesiology, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences; Tehran, Iran

Received June 2022; Revised and accepted November 2022

## Abstract

**Objective:** During the COVID-19 pandemic, burnout of healthcare workers, including anesthesiologists, has become a critical issue. This study aimed to provide a practical framework for decreasing and preventing burnout among anesthesiology residents through preserving their good mental health.

**Materials and methods:** Since the onset of the COVID-19 outbreak, anesthesiology residents have been members of medical teams with the attending staff, senior residents, and partner residents. Besides, the following measures were taken to reduce burnout: providing financial support for the attending staff to procure personal protective equipment (PPE), rearrangement of work schedules to reduce the workload, holding training sessions in virtual meetings, and improving the social network system for reducing burnout.

**Results:** The interventional program could help anesthesiology residents to adapt to or cope with the healthcare system status and also prevent burnout. Moreover, development of empathy, integrity, and cohesion in the healthcare system motivated the staff to comply with the principles of medical professionalism.

**Conclusion:** During the current health crisis due to COVID-19, it is essential to implement specific interventional and training programs for decreasing or preventing burnout among healthcare workers.

**Keywords:** Burnout; Anesthesia Residents; COVID-19; Professionalism; Medical Education; Resilience; Mentoring

## Introduction

In February 2020, the novel coronavirus disease (COVID-19) was first reported in Iran, causing drastic changes in the lives of thousands of people.

To date (1/14/2022), 6217320 cases of COVID-19 have been confirmed, and 132026 individuals have died due to this infection in Iran. The COVID-19 pandemic has become one of the main medical research topics for healthcare professionals (1).

Since the emergence of COVID-19, the public has become fearful of exposure to this virus, which seems

## Correspondence:

Dr. Seyed Mohamad Mireskandari  
Email: [smmireskandari@gmail.com](mailto:smmireskandari@gmail.com)



Copyright © 2022 Tehran University of Medical Sciences. Published by Tehran University of Medical Sciences.  
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license (<https://creativecommons.org/licenses/by-nc/4.0/>).  
Noncommercial uses of the work are permitted, provided the original work is properly cited.

to have a ubiquitous presence, or close contact with an infected person that would make them highly vulnerable to this disease. The intense fear of this unknown virus, along with panic and desperation, has affected almost all individuals. The level of stress and fear is even worse among anesthetists, as the main route of transmission is through respiratory droplets and close contact. Obviously, anesthetists are exposed to the patients' upper respiratory tract more than other specialists, as they provide respiratory care services using procedures, such as respiratory therapies, noninvasive ventilation, endotracheal intubation or suction, extubation, cardiopulmonary resuscitation, high-flow oxygen therapy, and invasive ventilation.

Anesthesiology departments and anesthesiologists quickly responded to the outbreak of COVID-19. Our hospital, with a capacity of more than 1000 beds, has become a referral center for COVID-19 patients. However, anesthetists, especially anesthesiology residents, are exposed to heightened levels of anxiety due to a lack of personal protective equipment (PPE), massive influx of critical patients, extended shifts (compensating for the absence of sick coworkers), witnessing high fatality rates, inability to have leave days to relax and alleviate the psychological burden of their profession, and their growing fear of transmitting the infection to their families or friends.

Since fear of long stays in isolation units and intensive care units (ICUs), besides excessive physical exhaustion, can result in burnout in the attending staff, we were motivated to address this problem. Before the COVID-19 pandemic, 50% of physicians were already tackling job burnout, caused by medical work-related stress (2). Generally, burnout is a state of emotional, physical, and mental exhaustion, caused by excessive or prolonged stress. It has become a newly emerging research topic in all healthcare workers, including the frontline healthcare professionals, especially anesthesiology residents (3, 4).

In this regard, researchers in China reported that women, nurses, and frontline healthcare workers were obviously more vulnerable to depression, anxiety, insomnia, and distress under the current working conditions (5). Resilience is defined as "positive psychological, behavioral, and/or social adaptation in the face of stressors and adversities" (6). If anesthesia residents do not receive adequate mental health care, the COVID-19 crisis can negatively affect their resilience. Therefore, it is essential to preserve the resilience of residents and

healthcare workers.

The current study aimed to describe some of our efforts and interventions established in our anesthesiology department, as the largest referral center for COVID-19 patients nationwide, providing services to a large number of patients. Generally, these measures and interventions aimed to provide care services for residents to prevent the transmission of COVID-19, to alleviate their psychological burden and protect their physical well-being, preserve their resilience, and prevent burnout and educational decline.

From the beginning of the COVID-19 pandemic, the attending hospital staff have been working hand in hand with anesthesiology residents, with a great sense of professional responsibility and empathy. Besides, at the beginning of the pandemic, the attending staff provided financial support for the procurement of PPE (e.g., N95 masks) when needed.

In this study, all residents were instructed on how to use the N95 masks properly and were asked to replace the masks in a timely manner to reduce the risk of contamination. The professors, along with residents, were present at the patients' bedside to intubate the patients themselves if needed, with the aim of reducing the rate of infection among residents and supervising the implementation of protective guidelines. If the attending staff could not attend a patient's bedside, a senior assistant resident (PGY-3) was present for airway management. Based on the newly established protocols, a decision was made to intubate the patient, preferably by video laryngoscopy, to reduce the possibility of disease transmission.

The schedule of the Anesthesia Department and the Anesthesiology Residency Program policies were adjusted regarding the residents' involvement in the treatment of COVID-19 patients to reduce their workload (without interfering with the services provided for the patients) and create a balance between clinical care, resident safety, and education. Moreover, the operating room anesthesia protocols for confirmed or suspected COVID-19 cases, along with other practice guidelines, were rapidly developed and published for minimizing the risk of infection; for instance, elective surgeries were postponed.

Given the possibility of educational dropout, the PG-4 thesis defense sessions and department meetings or classes (e.g., morning reports, journal clubs, and book reviews, such as Multiple-Choice Questions and Answers [MCQ] resource review) were held through the university virtual system. It

was also decided to reduce the residents' departmental rotations to 20 days rather than one month; with this increased flexibility, the residents could follow their routine residency curriculum. Moreover, online global rating forms, logbooks, professionalism scoring system, and expert opinions of faculty members for residents' promotion (instead of the annual promotion examination) were used.

In an innovative approach, all residents, regardless of their daily tasks, were supervised by an attending staff (as a dedicated mentor) and a senior resident (as an assistant) to determine the likelihood of heightened stress, unusual fear, and exhaustion and take appropriate measures to mitigate stress. The residents worked in pairs to support each other in the face of stressful situations, such as intubation of hypoxic COVID-19 patients admitted to the hospital. With the help and advice of mentor professors, all pregnant female residents, as well as residents with a coexisting disease or immunodeficiency, were removed from the COVID-19 unit.

Moreover, we held workshops on burnout and ways to prevent it. The residents were trained on how to prevent burnout in times of crisis and provide services to patients while acquiring new knowledge. They were also provided with reading materials pertaining to coping strategies with ongoing stressors. Besides, our anesthesia department set up an online forum, developed by anesthesiologists; the anesthesia residents were invited to answer the questions, submit their queries, and express their concerns directly.

Our social network system facilitated communication among the attending staff and residents, and they could share information, such as documented content about COVID-19, music, and poetry, and more importantly, share ideas and have discussions in organized lectures. Also, daily "cooling movements" were considered for residents in groups, using virtual methods or in face-to-face meetings. Coordination was made with psychologists in a counseling center to provide psychological support for the personnel via telemedicine, video chats, or online forums whenever needed (without stigma or consequences).

Residents with respect to professionalism can overcome extremely difficult clinical situations through increased empathy and reduced burnout. Job burnout would reduce if the residents felt that the attending staff cared about their well-being and also provided them with all possible support services, as they were enabled to adjust themselves to the

ongoing crisis.

By encouraging empathy and integrity in the healthcare team, the residents were able to adapt themselves to the principles of medical professionalism. The use of innovative approaches, including the use of dedicated mentors, supportive residents, and partner residents, could help mitigate stress among residents and improve their resilience.

## Discussion

During the COVID-19 pandemic, anesthesiologists have been exposed to a particularly high risk of burnout and poor mental health. Although there is no simple straightforward solution for managing burnout, establishment of some practical strategies in the workplace can be effective for residents (7). According to our results, the interventional program was effective in reducing the residents' stress and increasing their adjustment to the COVID-19 crisis. Our plan, involving teamwork cooperation, constant supervisor support, prevention of overwork, reduction of work pressure, use of shift work schedules, and providing mental health support by strengthening social relations, could mitigate burnout in residents. This plan yielded positive results and could be useful for other centers involved with COVID-19 (8, 9).

Several studies have reported that factors related to the working environment, shift work, and workload can lead to burnout among healthcare providers (8, 10). Considering the detrimental effects of burnout on the quality and safety of patient care and the mental health of medical teams, interventional programs to prevent or reduce burnout are essential (8). As addressed by the World Health Organization (WHO) on May 14, 2020, due to a predicted radical increase in the mental health status of hospital staff in the coming months, it is essential to increase investments in mental health services (11).

In this study, we only retrospectively reported the protocols and measures applied in our hospital to increase resilience and prevent burnout among anesthesiology residents. As we could not complete any questionnaires before or after the intervention, future studies are suggested to examine the effectiveness of these measures prospectively by completing valid questionnaires, such as Maslach Burnout Inventory and Connor-Davidson Resilience Scale.

Since the COVID-19 epidemic still persists in Iran, there is an urgent need to observe burnout among healthcare workers to prevent the negative psychological effects of this prolonged crisis (or other

crises). Overall, management of the COVID-19 outbreak has been a learning experience for healthcare workers; for instance, anesthesiology residents and anesthesiologists must be prepared to protect themselves and preserve their resilience. Such innovative strategies proved to be effective in reducing stress among residents to a great extent. We hope to continue these measures in the future to decrease the residents' anxiety during the COVID-19 outbreak or in times of crisis, such as earthquakes or floods that can affect a large proportion of the population.

## Conclusion

During the current health crisis due to COVID-19, it is essential to implement specific interventional and training programs for decreasing or preventing burnout among healthcare workers. Moreover, development of empathy, integrity, and cohesion in the healthcare system motivated the staff to comply with the principles of medical professionalism.

## Conflict of Interests

There is no conflict of interests among the authors.

## Acknowledgments

None.

## References

1. Shanafelt T, Ripp J, Trockel M. Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. *JAMA* 2020; 323: 2133-4.
2. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med* 2018; 283: 516-29.
3. Queen D, Harding K. Societal pandemic burnout: A COVID legacy. *Int Wound J* 2020; 17: 873-4.
4. Wang H, Zhou X, Jia X, Song C, Luo X, Zhang H, et al. Emotional exhaustion in front-line healthcare workers during the COVID-19 pandemic in Wuhan, China: the effects of time pressure, social sharing and cognitive appraisal. *BMC Public Health* 2021; 21: 829.
5. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA Netw Open*. 2020;3: e203976.
6. Fleming J, Ledogar RJ. Resilience, an Evolving Concept: A Review of Literature Relevant to Aboriginal Research. *Pimatisiwin* 2008; 6: 7-23.
7. Nishimura Y, Miyoshi T, Hagiya H, Kosaki Y, Otsuka F. Burnout of Healthcare Workers amid the COVID-19 Pandemic: A Japanese Cross-Sectional Survey. *Int J Environ Res Public Health* 2021; 18: 2434.
8. Barello S, Caruso R, Palamenghi L, Nania T, Dellafiore F, Bonetti L, et al. Factors associated with emotional exhaustion in healthcare professionals involved in the COVID-19 pandemic: an application of the job demands-resources model. *Int Arch Occup Environ Health* 2021; 94: 1751-61.
9. Rangachari P, L Woods J. Preserving Organizational Resilience, Patient Safety, and Staff Retention during COVID-19 Requires a Holistic Consideration of the Psychological Safety of Healthcare Workers. *Int J Environ Res Public Health* 2020; 17: 4267.
10. Zhang Y, Wang C, Pan W, Zheng J, Gao J, Huang X, et al. Stress, Burnout, and Coping Strategies of Frontline Nurses During the COVID-19 Epidemic in Wuhan and Shanghai, China. *Front Psychiatry* 2020; 11: 565520.
11. Alkhamees AA, Assiri H, Alharbi HY, Nasser A, Alkhamees MA. Burnout and depression among psychiatry residents during COVID-19 pandemic. *Hum Resour Health* 2021; 19: 46.

**Citation:** Samadi S, Khan ZH, Mireskandari SM, Karvandian K, Jafarzadeh A, Hajipour A. **Preserving Resilience for Prevention of Burnout in Anesthesiology Residents as Frontline Healthcare Workers During the COVID-19 Outbreak: A Report of Real-Life Experiences of Professionalism and Mentoring in Medical Education.** *J Family Reprod Health* 2022; 16(4): 296-9.