

## EDITORIAL

# A call to action for female front-line healthcare workers

Roma M. Mehta<sup>1,\*</sup>, Carol S. North<sup>2</sup>, Hetal J. Patel<sup>1</sup>, Rosechelle M. Ruggiero<sup>1</sup>, Traci N. Adams<sup>1</sup>

<sup>1</sup>Division of Pulmonary and Critical Care Medicine, University of Texas Southwestern Medical Center, Dallas, TX 75219, USA

<sup>2</sup>Department of Psychiatry, University of Texas Southwestern Medical Center, Dallas, TX 75219, USA

**\*Correspondence**

Roma.Mehta@utsouthwestern.edu  
(Roma M. Mehta)

**Abstract**

While the pandemic adversely affected healthcare workers (HCWs) regardless of gender, recent studies suggest that female front-line HCWs experienced substantially more deleterious effects of the pandemic compared to their male counterparts, with higher rates of burnout and psychiatric illness. As a result, turnover and decreased productivity have increased disproportionately among female HCWs, which has substantial economic consequences for the healthcare organizations that employ them. Specific interventions that decrease distress, one form of which is burnout, among female HCWs can reduce turnover and increase productivity. In order to support the wellbeing and retention of female front-line HCWs, we propose an action plan to mitigate work- and home-related stressors among women in the intensive care unit.

**Keywords**

Covid-19; Intensive care; Front-line healthcare workers; Mental health; Female health care workers; Burnout; Gender disparities; Attrition

## 1. Introduction

The horrors of Covid-19 intensive care unit (ICU) work weighed heavily on me. I (author TNA) felt persistently on edge for nearly 2 years, waiting for the next variant, the next wave, and the next set of work- or home-related challenges from a seemingly never-ending pandemic. I blamed myself for not being mentally tough enough to withstand the intense stress of Covid-19 ICU work and the challenge of raising young children during a global pandemic. I wondered how I could live with myself as a mother if I brought this deadly disease home to my children, and simultaneously how I would face my colleagues if I walked away from critical care medicine when I was needed the most.

I began to wonder whether my roles as a wife and mother, the parts of my life that I cherished most, were incompatible with the responsibilities associated with my career as a pulmonary and critical care physician during the pandemic. What if qualities such as empathy and compassion which made me successful as a female physician in a male-dominated field and as a wife and mother were the very ones driving my distress at work as I agonized over countless patient deaths and repeated exposure to human suffering? What if this was a shared experience among female health care workers (HCWs) who formed 75% of the global healthcare work force and 27% of the critical care physician workforce during the pandemic [1–4]? What if, simply by virtue of my gender, which gave me disproportionate stress at work and at home, I was set up to fail?

Gender disparities among HCWs existed prior to the pandemic. Multiple studies have demonstrated pre-existing gen-

der disparities in salaries, leadership roles and academic promotion [1–4]. Several etiologies for these gender gaps have been proposed, including disproportionate burden of family responsibilities for female HCWs, lack of organizational support, and lack of female sponsorship. These etiologies are exacerbated by the underrepresentation of women in leadership positions or tenured academic positions within healthcare organizations (HCOs). These disparities have been compounded by the Covid-19 pandemic.

While the pandemic adversely affected HCWs regardless of gender [5–7], recent studies suggest that female front-line HCWs experienced substantially more deleterious effects of the pandemic compared to their male counterparts, with higher rates of burnout and psychiatric illness [8–12]. As a result, turnover and decreased productivity have increased disproportionately among female HCWs, which has substantial economic consequences for the HCOs that employ them.

An action plan that addresses modifiable stressors affecting female HCWs is important, both for the wellbeing of female HCWs and for the economic benefit of HCOs. An action plan should address home-related stressors, work-related stressors, and threats to physical health of female front-line HCWs. This sentiment is shared by the US Surgeon General who created a public advisory raising awareness to factors threatening HCWs in the post-pandemic era [13]. While the focus of this manuscript is on female front-line HCWs in the pandemic, whom we define as those on the primary team (*i.e.*, physicians, nurses and respiratory therapists) who had direct physical contact with Covid-19 patients, we suggest that these measures can be applied in the non-pandemic setting as well.

## 2. Barriers to female front-line HCW wellbeing

The strain on female HCWs was intensified when the Covid-19 pandemic increased work and home demands simultaneously. Inadequate childcare due to widespread daycare closures and cancellation of in-person schooling substantially increased home stress. While these struggles are not unique to women, prior research has outlined that the “invisible extra shift” of home responsibilities falls more heavily on women than their male counterparts [14]. During the pandemic, female physicians were far more likely to be responsible for their children’s schooling than male physicians (25% vs. 1%), more likely to perform household tasks (31% vs. 7%) and more than twice as likely to have reduced their work hours in order to fulfill household responsibilities [10, 15–17].

An additional under-appreciated home stressor among women in healthcare even outside of the pandemic is that of infertility. Approximately 25–45% of female HCWs suffer from infertility [18], a much higher rate than the 17.5% prevalence of infertility among the general population [19]. Rates of pregnancy loss can be up to 42% in female HCW, more than double the general population of women aged 30–40 years [20]. Given the known correlation between stress levels and infertility as well as the time and emotional burden of infertility treatment, front-line work during the pandemic may lead to reduced fertility, failed *in vitro* fertilization cycles, or delay in seeking fertility treatments.

In addition to increased responsibility in the home, work-related stressors abounded during the pandemic, including escalation in assigned shifts during Covid-19 surges and concerns about physical/medical safety. At many academic institutions including our own, age was initially identified as a risk factor for immunosuppression, and faculty over the age of 65 were not permitted to work in the Covid-19 ICU until vaccines were distributed. Unfortunately, no similar restriction for pregnant or postpartum mothers was made at our institution, despite the higher risk of severe Covid-19 infection in pregnant women and infants [21].

An additional risk to female front-line worker safety included personal protective equipment (PPE) not designed to fit women well. PPE was the primary source of infection prevention, yet most PPE was designed in the 1950s–1970s for the size and shape of white male military recruits of that era [22, 23]. Moreover, due to resource limitations during the pandemic, PPE was often reused at large institutions, leading to an increased risk of self-contamination during the donning and doffing process [24]. As a result of reusing poorly fitting PPE, female HCWs had higher rates of Covid-19 infection compared to their male counterparts in Italy, Spain and the US [25].

Increasing workplace violence constituted another barrier to physical safety during the pandemic. During the pandemic, workplace violence increased by 40–47% [26]. Workplace violence leads to burnout and moral distress which can contribute to attrition rates [27].

In addition to the increased physical/medical risk of front-line work among female physicians, women also carried a greater risk of psychiatric illness and burnout [15–17, 28, 29]. A study at Mayo Clinic found that the odds ratio for burnout

among women physicians during the pandemic was 2.02 (95% confidence interval, 1.59 to 2.57) compared with 1.27 in men [30]. Burnout is positively correlated with intention to leave medicine [31, 32]. Further, rates of psychiatric illness including anxiety and depression as well as suicide were higher in female front-line workers than in their male counterparts [15–17].

One more work-related stressor during the pandemic included decreased academic productivity which disproportionately affected female physicians [33]. In one study, only 30% of authors of academic journal submission regarding Covid-19 were female [34]. Failure to publish may lead to delays in promotion, and failure to achieve academic promotion is a leading cause of turnover among female physicians in academic medical centers [35].

Work-related stressors may be intensified by underrepresentation of women in leadership positions and tenured academic positions within HCOs. A recent study revealed that only 25% of senior leadership roles in HCOs are held by women, with the remaining 75% held by men [36]. In academia as of 2019, nationwide men outnumber women at the full professor level by nearly 3:1 (29,232 male full professors vs. 11,559 female full professors) and were more likely to be promoted to full professor (62% promotion rate for men, 38% for women) [37]. The vast majority of academic division chairs (71% men, 29% women) and department chairs (82% men, 18% women) are men [37]. Studies consistently show increased gender diversity in management positions is correlated with better economic performance and improved team satisfaction [38]. A Canadian study published in 2022 that spanned over 499 organizations over 14 years showed that incorporating female representation in leadership positions led to improved organizational relationships and lower turnover for both male and female employees [39]. The authors postulated a tipping point of adding just 3 women to any size organization in leadership positions led to decreased collective employee turnover [39].

## 3. Economic impact of the failure to address well-being among female front-line HCWs

The aforementioned barriers to female front-line HCW well-being, including workplace violence, burnout, psychiatric illness, underrepresentation in leadership positions, and failure to achieve promotion, have been associated with increased clinician turnover prior to the pandemic. The economic consequences of employee turnover in HCOs are substantial and the numbers are staggering [40, 41]. Nationally, hospital turnover rates for all occupations is 22.7%. Nurse turnover is 22.5%, and the average cost of turnover for a bedside nurse is USD \$52,350, resulting in healthcare organization losses between \$6.6M and \$10.5M when nursing turnover is at its usual rate. Each percent change in registered nurse (RN) turnover will cost the average hospital USD \$380,600 per year. The cost of replacement of a physician is higher, ranging between USD \$500,000 and \$1M per physician lost due to recruitment, training, and lost revenue. It is estimated that burnout rates for critical care physicians are between 50–60% [42, 43]. It is estimated that the cost of burnout *via* staff

turnover or reduction in work hours is somewhere close to \$4.6 billion per year [40, 44]. Further, a recent study of 18,719 academic physicians between 2019 and 2021 demonstrated that female physicians had higher burnout scores and intention to leave than their male counterparts; pulmonary and critical care physicians had among the highest rates of burnout and intention to leave. Interventions to reduce burnout may therefore decrease employee turnover resulting in economic gains (or reduction in losses) for HCOs.

For HCWs who remain in their jobs, increased burnout scores lead to decreased productivity [45], which may also have economic consequences for HCOs. A prospective longitudinal study from the Mayo Clinic demonstrated that for every 1-point increase in burnout score, there is a 43% increase in likelihood that a physician will reduce clinical effort in the following 24 months leading to reduced HCO revenue [46]. Addressing physician burnout may lead to improved productivity and an increase in HCO revenue both in the event of a future pandemic and during times of normative operations.

#### 4. Interventions to improve female front-line healthcare workers' well-being and retention

Specific interventions that decrease distress, one form of which is burnout, among female HCWs can reduce turnover and increase productivity. In order to support the wellbeing and retention of female front-line HCWs, we propose several interventions. These interventions may benefit both male and female HCWs but are designed to address the barriers that disproportionately affect female HCWs.

*Interventions to address home-related stress among female front-line HCWs including inadequate childcare, disproportionate responsibilities within the home, and infertility.*

1. Provision of reliable, affordable childcare during periods of school closures, which may include opening daycare centers for front-line workers or providing in-home low-cost childcare [47, 48].

2. The option of remote work and work hours accommodating individuals without access to dependent care [48].

3. Economic equalization with hazard pay and moonlighting money for any shifts over usually expected schedules [48].

4. Increase in paid time off for front-line HCWs [49].

5. Broadening of the pool of front-line HCWs in order to spread the increased workload among a higher number of staff [49].

6. Provision of backup coverage for women who require medical appointments for infertility, pregnancy, and post-partum care [50].

*Interventions to address work-related stress among female front-line HCWs including those in medically high-risk groups, victims of verbal or physical abuse, and those with poorly fitting PPE.*

7. Inclusion of women in the pre-conception, early pregnancy, or post-partum stages in high-risk groups for acquiring serious Covid-19 infection and accommodations made for their safety [21].

8. Zero-tolerance policy for any verbal or physical abuse by patients or their families toward HCWs [51].

9. Well-fitting PPE for female faces [23–25].

*Interventions to improve distress and access to psychiatric assessment for female front-line HCWs given the burden of distress and psychiatric illness among female HCWs.*

10. Screening for diagnosable psychopathology using an opt-out rather than an opt-in strategy. This can be completed by a mental health professional, or when demand for screening is excessive, by survey screening tools [49]. Patient health questionnaire-9 (PHQ-9) and generalized anxiety disorder-7 (GAD-7) are examples of validated screening tools for major depression and generalized anxiety disorder. Because these scales do not provide psychiatric diagnosis, positive screens must be followed with a formal psychiatric assessment [49].

11. Early mobilization and operationalization of psychiatry and psychology professionals to meet the increased demand for services [49].

*Interventions to improve the proportion of women in leadership positions given the high number of leadership positions held by men.*

12. Provision of academic credit to physicians who performed substantial front-line clinical work during the pandemic to minimize the delay in promotion for physicians whose academic productivity suffered during that period [34, 35].

13. Increase the inclusion of women in hospital leadership roles [39].

#### 5. Conclusion

The mental and physical health of female front-line workers was disproportionately affected during the pandemic. Increased home stressors, work stressors, and threats to physical health led to increased turnover and decreased productivity among female HCWs. The action plan proposed in this article addresses home-related and work-related stressors, lack of access to psychiatric assessment, and the underrepresentation of women in leadership positions that can all affect their health and wellbeing in a pandemic.

#### AVAILABILITY OF DATA AND MATERIALS

Not applicable.

#### AUTHOR CONTRIBUTIONS

RMM, HJP, RMR and TNA—contributed to the conceptualization, writing and editing of the manuscript and approve of the final version. CSN—contributed to the manuscript and approved the final version.

#### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

#### ACKNOWLEDGMENT

Not applicable.

## FUNDING

This research received no external funding.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## REFERENCES

- [1] Catenaccio E, Rochlin JM, Simon HK. Addressing gender-based disparities in earning potential in academic medicine. *JAMA Network Open*. 2022; 5: e220067.
- [2] Richter KP, Clark L, Wick JA, Cruvinel E, Durham D, Shaw P, *et al*. Women physicians and promotion in academic medicine. *New England Journal of Medicine*. 2020; 383: 2148–2157.
- [3] AAMC. 2018–2019 The state of women in academic medicine: exploring pathways to equity. 2020. Available at: <https://www.aamc.org/data-reports/data/2018-2019-state-women-academic-medicine-exploring-pathways-equity> (Accessed: 09 January 2024).
- [4] Carr PL, Raj A, Kaplan SE, Terrin N, Breeze JL, Freund KM. Gender differences in academic medicine: retention, rank, and leadership comparisons from the national faculty survey. *Academic Medicine*. 2018; 93: 1694–1699.
- [5] Goddard AF, Patel M. The changing face of medical professionalism and the impact of COVID-19. *The Lancet*. 2021; 397: 950–952.
- [6] Shaukat N, Ali DM, Razzak J. Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *International Journal of Emergency Medicine*. 2020; 13: 40.
- [7] Van Wert MJ, Gandhi S, Gupta I, Singh A, Eid SM, Haroon Burhanullah M, *et al*. Healthcare worker mental health after the initial peak of the COVID-19 pandemic: a US medical center cross-sectional survey. *Journal of General Internal Medicine*. 2022; 37: 1169–1176.
- [8] Ferry AV, Wereski R, Strachan FE, Mills NL. Predictors of UK healthcare worker burnout during the COVID-19 pandemic. *QJM: An International Journal of Medicine*. 2021; 114: 374–380.
- [9] Power K. The COVID-19 pandemic has increased the care burden of women and families. *Sustainability: Science, Practice and Policy*. 2020; 16: 67–73.
- [10] Frank E, Zhao Z, Fang Y, Rotenstein LS, Sen S, Guille C. Experiences of work-family conflict and mental health symptoms by gender among physician parents during the COVID-19 pandemic. *JAMA Network Open*. 2021; 4: e2134315.
- [11] Templeton K, Bernstein CA, Sukhera J, Nora LM, Newman C, Burstin H, *et al*. Gender-based differences in burnout: issues faced by women physicians. 2019. Available at: <https://nam.edu/gender-based-differences-in-burnout-issues-faced-by-women-physicians/> (Accessed: 09 January 2024).
- [12] Frogner BK, Dill JS. Tracking turnover among health care workers during the COVID-19 pandemic. *JAMA Health Forum*. 2022; 3: e220371.
- [13] Murthy VH. Addressing health worker burnout: the U.S. surgeon general's advisory on building a thriving health workforce. 2022. Available at: <https://www.hhs.gov/sites/default/files/health-worker-wellbeing-advisory.pdf> (Accessed: 09 January 2024).
- [14] Jolly S, Griffith KA, DeCastro R, Stewart A, Ubel P, Jagsi R. Gender differences in time spent on parenting and domestic responsibilities by high-achieving young physician-researchers. *Annals of Internal Medicine*. 2014; 160: 344–353.
- [15] Crimi C, Carlucci A. Challenges for the female health-care workers during the COVID-19 pandemic: the need for protection beyond the mask. *Pulmonology*. 2021; 27: 1–3.
- [16] Pappa S, Ntella V, Giannakos T, Giannakoulis VG, Papoutsis E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. *Brain, Behavior, and Immunity*. 2020; 88: 901–907.
- [17] Rahman A, Plummer V. COVID-19 related suicide among hospital nurses; case study evidence from worldwide media reports. *Psychiatry*. 2020; 291: 113272.
- [18] Stentz NC, Griffith KA, Perkins E, Jones RD, Jagsi R. Fertility and childbearing among American female physicians. *Journal of Women's Health*. 2016; 25: 1059–1065.
- [19] World Health Organization. Infertility prevalence estimates: 1990–2021. 2023. Available at: <https://iris.who.int/bitstream/handle/10665/366700/9789240068315-eng.pdf?sequence=1&isAllowed=y> (Accessed: 09 January 2024).
- [20] Rangel EL, Castillo-Angeles M, Easter SR, Atkinson RB, Gosain A, Hu Y, *et al*. Incidence of infertility and pregnancy complications in us female surgeons. *JAMA Surgery*. 2021; 156: 905.
- [21] Matsuo K, Green JM, Herrman SA, Mandelbaum RS, Ouzounian JG. Severe maternal morbidity and mortality of pregnant patients with COVID-19 infection during the early pandemic period in the US. *JAMA Network Open*. 2023; 6: e237149.
- [22] Centers for Disease Control and Prevention. Exoskeletons and occupational health equity. 2022. Available at: <https://blogs.cdc.gov/niosh-science-blog/2020/12/14/exoskeletons-health-equity> (Accessed: 21 January 2022).
- [23] Perez CC. Invisible women: the Sunday Times number one bestseller exposing the gender bias women face every day. 2019. Available at: [http://books.google.ie/books?id=MKZYDwAAQBAJ&printsec=frontcover&dq=Criado+Perez,+Caroline.+Invisible+Women:+Data+Bias+in+A+World+Designed+for+Men.+Harry+N.+Abrams,+2019&hl=&cd=1&source=gb\\_api](http://books.google.ie/books?id=MKZYDwAAQBAJ&printsec=frontcover&dq=Criado+Perez,+Caroline.+Invisible+Women:+Data+Bias+in+A+World+Designed+for+Men.+Harry+N.+Abrams,+2019&hl=&cd=1&source=gb_api) (Accessed: 07 March 2019).
- [24] Doos D, Barach P, Sarmiento E, Ahmed R. Reuse of personal protective equipment: results of a human factors study using fluorescence to identify self-contamination during donning and doffing. *The Journal of Emergency Medicine*. 2022; 62: 337–341.
- [25] UN Women Data Hub. COVID-19: emerging gender data and why it matters. 2020. Available at: <https://data.unwomen.org/resources/covid-19-emerging-gender-data-and-why-it-matters> (Accessed: 26 June 2020).
- [26] Zhang S, Zhao Z, Zhang H, Zhu Y, Xi Z, Xiang K. Workplace violence against healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. *Environmental Science and Pollution Research*. 2023; 30: 74838–74852.
- [27] Aguglia A, Belvederi Murri M, Conigliaro C, Cipriani N, Vaggi M, Di Salvo G, *et al*. Workplace violence and burnout among mental health workers. *Psychiatric Services*. 2020; 71: 284–288.
- [28] Sanford J, Agrawal A, Miotto K. Psychological distress among women healthcare workers: a health system's experience developing emotional support services during the COVID-19 pandemic. *Frontiers in Global Women's Health*. 2021; 2: 614723.
- [29] Salazar de Pablo G, Vaquerizo-Serrano J, Catalan A, Arango C, Moreno C, Ferre F, *et al*. Impact of coronavirus syndromes on physical and mental health of health care workers: systematic review and meta-analysis. *Journal of Affective Disorders*. 2020; 275: 48–57.
- [30] Shanafelt TD, West CP, Dyrbye LN, Trockel M, Tutty M, Wang H, *et al*. Changes in burnout and satisfaction with work-life integration in physicians during the first 2 years of the COVID-19 pandemic. *Mayo Clinic Proceedings*. 2022; 97: 2248–2258.
- [31] Hämmig O. Explaining burnout and the intention to leave the profession among health professionals—a cross-sectional study in a hospital setting in Switzerland. *BMC Health Services Research*. 2018; 18: 785.
- [32] Ligibel JA, Goularte N, Berliner JI, Bird SB, Brazeau CMLR, Rowe SG, *et al*. Well-being parameters and intention to leave current institution among academic physicians. *JAMA Network Open*. 2023; 6: e2347894.
- [33] Andersen JP, Nielsen MW, Simone NL, Lewiss RE, Jagsi R. COVID-19 medical papers have fewer women first authors than expected. *eLife*. 2020; 9: e58807.
- [34] Gabster BP, van Daalen K, Dhatt R, Barry M. Challenges for the female academic during the COVID-19 pandemic. *The Lancet*. 2020; 395: 1968–1970.
- [35] Chen Y, Orlas C, Kim T, Chang DC, Kelleher CM. Workforce attrition among male and female physicians working in US academic hospitals, 2014–2019. *JAMA Network Open*. 2023; 6: e2323872.
- [36] Berlin G, Robinson N, Sharma M. Women in the healthcare industry: an update. 2023. Available at: <https://www.mckinsey.com>

- com/industries/healthcare/our-insights/women-in-healthcare-and-life-sciences-the-ongoing-stress-of-covid-19 (Accessed: 30 March 2023).
- [37] AAMC. Faculty roster: U.S. medical school faculty. 2023. Available at: <https://www.aamc.org/data-reports/faculty-institutions/data/us-medical-school-faculty-trends-counts> (Accessed: 09 January 2024).
- [38] Perryman AA, Fernando GD, Tripathy A. Do gender differences persist? An examination of gender diversity on firm performance, risk, and executive compensation. *Journal of Business Research*. 2016; 69: 579–586.
- [39] Maurer CC, Qureshi I. Not just good for her: a temporal analysis of the dynamic relationship between representation of women and collective employee turnover. *Organization Studies*. 2021; 42: 85–107.
- [40] Han S, Shanafelt TD, Sinsky CA, Awad KM, Dyrbye LN, Fiscus LC, *et al.* Estimating the attributable cost of physician burnout in the United States. *Annals of Internal Medicine*. 2019; 170: 784.
- [41] Shanafelt T, Goh J, Sinsky C. The business case for investing in physician well-being. *JAMA Internal Medicine*. 2017; 177: 1826.
- [42] Atkinson W, Misra-Hebert A, Stoller JK. The impact on revenue of physician turnover: an assessment model and experience in a large healthcare center. *The Journal of Medical Practice Management*. 2006; 21: 351–355.
- [43] Banerjee G, Mitchell JD, Brzezinski M, DePorre A, Ballard HA. Burnout in academic physicians. *The Permanente Journal*. 2023; 27: 142–149.
- [44] Dyrbye LN, Awad KM, Fiscus LC, Sinsky CA, Shanafelt TD. Estimating the attributable cost of physician burnout in the United States. *Annals of Internal Medicine*. 2019; 171: 600.
- [45] Dewa CS, Loong D, Bonato S, Thanh NX, Jacobs P. How does burnout affect physician productivity? A systematic literature review. *BMC Health Services Research*. 2014; 14: 325.
- [46] Shanafelt TD, Mungo M, Schmitgen J, Storz KA, Reeves D, Hayes SN, *et al.* Longitudinal study evaluating the association between physician burnout and changes in professional work effort. *Mayo Clinic Proceedings*. 2016; 91: 422–431.
- [47] Child Care Aware of America. Child care for essential workers during coronavirus outbreak. 2020. Available at: <https://www.childcareaware.org/coronavirus/child-care-essential-workers-coronavirus-outbreak> (Accessed: 25 March 2020).
- [48] 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.
- [49] Adams TN, Ruggiero RM, North CS. Addressing mental health needs among frontline health care workers during the COVID-19 pandemic. *Chest*. 2023; 164: 975–980.
- [50] Tome M, Zwahlen E. Lived experience of infertility and *in vitro* fertilization treatment. *Australian Journal of General Practice*. 2023; 52: 295–297.
- [51] Aljohani B, Burkholder J, Tran QK, Chen C, Beisenova K, Pourmand A. Workplace violence in the emergency department: a systematic review and meta-analysis. *Public Health*. 2021; 196: 186–197.

**How to cite this article:** Roma M. Mehta, Carol S. North, Hetal J. Patel, Rosechelle M. Ruggiero, Traci N. Adams. A call to action for female front-line healthcare workers. *Signa Vitae*. 2024; 20(7): 5-9. doi: 10.22514/sv.2024.080.