

Review Article

Impact of the intersection of anaesthesia and gender on burnout and mental health, illustrated by the COVID-19 pandemic

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Summary

Physician burnout and poor mental health are prevalent and often stigmatised. Anaesthetists may be at particular risk and this is further increased for women anaesthetists due to biases and inequities within the specialty. However, gender-related risk factors for and experiences of burnout and poor mental health remain under-researched and under-reported. This negatively impacts individual practitioners, the anaesthesia workforce and patients and carries significant financial implications. We discuss the impact of anaesthesia and gender on burnout and mental health using the COVID-19 pandemic as an example illustrating how women and men differentially experience stressors and burnout. COVID-19 has further accentuated the gendered effects of burnout and poor mental health on anaesthetists and brought further urgency to the need to address these issues. While both personal and organisational factors contribute to burnout and poor mental health, organisational changes that recognise and acknowledge inequities are pivotal to bolster physician mental health.

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Introduction

Physician burnout and poor mental health are prevalent [1-4], with specific aspects of the role of the anaesthetist placing individuals at particular risk [5]. While data on gender are conflicting [4, 6], there are particular gendered risk factors contributing to burnout and poor mental health [7]. Although these are under-researched and under-reported, they likely interact with additional risk factors associated with being a woman anaesthetist [8, 9]. The COVID-19 pandemic has amplified inequities,

to the detriment of women, such as disproportionate job and wage losses and disproportionate care-giving responsibilities [10]. To date, little attention has been paid to the intersection of how COVID-19 may contribute to disproportionate strains on physicians' mental health through amplification of pre-existing inequities particularly affecting women within medicine. Insufficient exploration of this topic may have a substantial impact on the medical workforce now and in the coming years; thus, it is imperative we examine and address the impact

of gender on the mental health of anaesthetists and specifically the additional influence of COVID-19. This paper aims to highlight some of the ways in which women anaesthetists may differentially experience stressors and, by extension, burnout, with COVID-19 illustrating an extreme version of these effects. This paper not only highlights issues that need to be considered by our colleagues, leaders and policy creators to assist in providing support to one another now, but also in the aftermath of the pandemic and in the longer term to protect the mental health of our healthcare workers.

We take the opportunity to discuss sex and gender as constructs. Although sex and gender remain active topics of discussion with differing opinions and theories, sex can be defined as biological differences between male and female (e.g. chromosomal complement, hormonal differences); sex-related terminology consists of male and female. Gender is a social construct that is rooted in history, politics, and culture; gender-related terminology consists of man and woman. Gender binaries are typically discussed (i.e. man and woman). However, according to post-structuralism, the binary opposition (i.e. man and woman) does not hold when discussing, for example, people who identify as non-binary, as gender fluid. As we are depicting a gendered phenomenon, not a sex-related phenomenon, we prefer to employ gender and gender-related terminology. Furthermore, it is universally accepted that literature using sex-related terminology be cited with such terms as male and female and that literature using gender-related terminology be cited with such terms as man and woman.

Burnout and poor mental health in medicine and anaesthetics

Physicians face enormous pressures and challenges on a daily basis: they are expected to be excellent clinicians; researchers; educators; administrators; and colleagues, all the while experiencing external pressures to be academically productive. The stress experienced is both significant and chronic and when combined with other organisational and personal stressors, may contribute to burnout: a psychological state characterised by high levels of depersonalisation, emotional exhaustion and low levels of personal accomplishment [11, 12]. Burnout primarily results from repeated and prolonged exposure to work-related stressors including: work overload; lack of job control; lack of autonomy and time pressures [13], although psychosocial risk factors such as personality characteristics, low job social support and work–home conflict have also been identified [1, 8, 14]. Psychosocial effects of burnout include: absenteeism; disengagement; seclusion; and

strained relationships within the home and work environment.

Physician burnout has been the focus of increasing research and the topic of much discussion given the detrimental impact it can have on both physician and patient well-being. Reported prevalence rates of physician burnout vary substantially across studies, due in large part to the lack of a single agreed-on measurement tool and associated criteria. For example, a systematic review on physician burnout prevalence noted 142 unique definitions for burnout in 182 studies [2]. This problem underlies a major issue in the field, namely, varied conceptualisation and operationalisation of burnout. Is it truly a distinct phenomenon from depression and/or exhaustion? Should it still be considered as arising only as a result of human relations-induced stress [2, 3]? Nevertheless, burnout and mental health issues affect between 30 and 60% of physicians and trainees [1–4], with highest rates of burnout seen in specialising trainees [1]. Reviews of the literature have found that work-related characteristics such as long hours and excessive workloads are key causes of burnout in physicians, due in large part to strained work–personal life balance [1, 4]. Notably, however, burnout rates in physicians remain higher than in other professions even after adjusting for other factors such as work hours [4]. Burnout in physicians is associated with negative consequences for physicians, patients and the healthcare system overall. Physician burnout is linked with: poorer mental and physical health in physicians; problems in personal life; decreased job satisfaction; increased medical errors and patient safety risks; worse quality of patient care; and lower patient satisfaction [1, 4, 15]. Burnout is also associated with: reduced work hours and number of patients seen; increased sick leave; intent to leave medicine or change jobs; and early retirement [1, 16]. These have significant financial implications on healthcare systems, for example, they have been estimated to cost over \$213 million in Canada alone (£123 million; €137 million)[16].

Rates of burnout symptoms differ across medical specialties with up to three-fold increased odds in acute care physicians such as emergency medicine, general internal medicine and neurology [4]. However, data are conflicting on whether burnout rates in anaesthetists follow this pattern [5]. Anaesthetists' peri-operative work requires constant vigilance, relative isolation and remaining well-informed on emerging and evolving technologies, anaesthetic techniques and work environments. This is all while working with increasingly complex patients, where decisions and actions have potentially profound implications [17]. These features of clinical work point to the

possibility that manifestations of burnout, such as fatigue and impaired cognitive function, may result in a heightened risk of patient harm. Indeed, several research studies illustrate that fatigue is a highly pervasive and problematic issue among anaesthetists and anaesthetic trainees with significant negative impacts on physical health, well-being and personal relationships [18, 19]. Preliminary evidence suggests that fatigue-reducing strategies such as a reduced on-call model may improve anaesthetic trainee well-being and reduce the risk of burnout [20]. As anaesthetists, we must refute the notion that fatigue is an acceptable sacrifice. It is imperative that anaesthetists continue to advance a culture that ensures education about fatigue, reasonable workloads, regular rest breaks and rest facilities are de facto provided and accessible.

Gender contributes to the risk for and experience of burnout in anaesthetists

Much has been written on the relationship between gender and physician burnout. Although gender is associated with burnout in some studies [6], others suggest that after controlling for age and other variables, gender may not be a consistent risk factor [4]. The conflicting findings in burnout prevalence according to sex likely arise from substantial between-study differences in burnout assessment tools, as well as study populations [2, 5]. Moreover, these distract from the more useful question of whether the experiences of and contributors to burnout differ by physician gender. For example, a UK study of anaesthetists reported elevated work-related fatigue in women respondents across all age categories [18]. There are well-known sex- and gender-related differences in stress responses [21, 22] and vulnerability to stress-related mental health disorders [23–25] as well as differences in symptomatic expression of the same mental health problem [15, 26]. Similar findings are reported in the burnout literature with some studies reporting that women's experiences of burnout are linked with emotional exhaustion, whereas men's experiences are linked with depersonalisation [27, 28]. In some cases, higher rates of burnout in anaesthetists who are men appear to result from significantly higher levels of depersonalisation [29, 30]. Of additional interest, one study of Norwegian physicians found not only higher exhaustion levels in women and higher disengagement levels among men, but also gender differences in predictors of burnout with work-home conflicts predominating in women and workload the strongest predictor in men [7].

Gender bias and gender-related inequities are significant stressors, to which medicine, and anaesthesia in particular, is not immune. Women physicians report

inequities in opportunity, recognition and credibility [8] that may impact their work, working relationships and mental health. There are fewer women in leadership positions within anaesthesia compared with men [31, 32], resulting in less gender-concordant allyship opportunities and gender-concordant mentorship, which has been identified as particularly important for anaesthesia trainees [33]. It is unclear whether the gender gap in leadership arises from differences in a desire to pursue a leadership career [9, 34] or from the numerous systemic barriers that prevent women from attaining leadership roles, as women anaesthetists report a greater frequency of barriers to career promotion than their counterparts who are men [34, 35]. There are also substantial gender inequities in professional and academic opportunities in anaesthesia. Reports reveal that women receive fewer grants, awards and are under-represented as speakers at conferences [36]; they are also assigned lower academic rank and pay [37, 38].

Furthermore, gender discrimination is experienced significantly more frequently by women anaesthetists compared with men during training [39, 40] and throughout their careers, with one survey revealing that women anaesthetists report experiencing the highest rate of maternal discrimination in the workplace of all medical specialties [41]. In addition to this, large-scale studies report very high levels of gender-based mistreatment in anaesthesia. Particularly alarming is the finding from an international survey of over 11,000 anaesthetists from 148 countries, which showed that women anaesthetists are 10 times more likely to report being mistreated in the workplace compared with men [9]. Likewise, a study of over 27,000 medical students in the USA found women students were significantly more likely to report mistreatment compared with men students, with over 40% of women students reporting at least one episode of mistreatment [40]. These inequities undoubtedly contribute to feelings of frustration and mistrust of colleagues and leadership among women anaesthetists [39]. These various forms of bias, mistreatment and discrimination may significantly impact patient safety and, for trainees, their performance evaluations. In a randomised experiment, anaesthesia trainees who were exposed to incivility in a simulated operating room crisis, involving a rude environment, showed worse technical and non-technical performance in areas including vigilance, diagnosis, communication and patient management [42].

It is crucial at this time to also acknowledge that vigilance in detecting and addressing the mental health needs of anaesthetists and healthcare workers more generally must include attention to disparities experienced

across multiple axes and social locations, for example: gender; race; ability; and sexual orientation. Furthermore, research and policies should extend gender binaries (women or men) to be inclusive of anyone who does not identify with the woman–man gender binary or who does not take on ‘traditional’ social gender roles [43]. Anaesthetists from around the world report experiencing bias as a result of being foreign-born and/or of the region’s non-dominant race, as well as bias related to religion or caste [9]. Recent studies also report significantly elevated frequencies of mistreatment and discrimination in anaesthetic trainees who are non-White and not heterosexual [40], as well as compounded gender bias for women anaesthetic trainees from an ethnic minority background. More research in this area is clearly needed, particularly as the anaesthetist workforce composition shifts towards the inclusion and broader representation of Black, indigenous and people of colour as well as all socially marginalised people. Historically, research examining gender differences did not include members of these groups due to the lack of representation in the field [44]. For example, in a study examining gender differences in anaesthetists’ annual incomes, the number of Black respondents was so small that the researchers had to limit their analyses to White respondents only [44].

Gender and burnout in anaesthesia during COVID-19

Globally, the COVID-19 pandemic has posed challenges to both health systems and humanity. The efforts and scholarly work recognising and offering potential solutions to healthcare workers’ mental health challenges during the COVID-19 pandemic that result from a unique combination of factors including, but not limited to: high rates of COVID-19 exposure and infection; constantly changing protocols and procedures; long work hours; and insufficient resources including personal protective equipment, which altogether contribute to unprecedented levels of emotional distress [45–48], should be applauded.

From the pandemic’s inception, anaesthetists have played and continue to play a vital role as frontline physicians. Anaesthetists and the range of services they offer are in high demand, which has translated to longer working hours in high-risk environments such as increased participation in aerosol-generating medical procedures. These conditions, paired with the general uncertainty regarding long-term availability of scarce resources needed to care for themselves (such as personal protective equipment) and their patients (e.g. ventilators or medication), compound the stress

experienced and are likely to increase the risk of burnout among anaesthetists. Previous work shows that the risk of burnout among anaesthetists’ increases significantly with longer number of hours worked and increased workload [5], but this risk decreases with proper supervision and/or job support [5] as well as higher perceived workplace resource availability [49]. This points to the pivotal role of organisational factors in supporting anaesthetists’ mental health during the ongoing COVID-19 pandemic. Additionally, support from family and the maintenance of a healthy work–life balance, both of which are protective factors against burnout in anaesthetists [4, 49], have been disrupted for most during the current pandemic, further increasing the potential for developing burnout. Altogether, this amounts to the critical realisation that anaesthetists working during the COVID-19 pandemic may be at an increased risk of burnout and other stress-related mental health issues.

Organisations and individuals must be cognisant of potential differences in contributors, experiences and consequences of COVID-19-related burnout. For example, gender differences may be observed in the frequency and/or manifestations of anxieties related to COVID-19 infection. At least one study has found women healthcare workers involved in tracheal intubation of patients with suspected or confirmed COVID-19 were at increased risk of subsequent COVID-19 diagnosis or symptoms requiring self-isolation or hospitalisation [50], with speculation that this may be related to gendered designs of personal protective equipment [51]. The COVID-19 pandemic may also bring about anxieties about protecting oneself and one’s family. Similarly, anaesthetists’ workload is increased due to COVID-19 as hospitals attempt to ‘make up for lost time’ for elective or non-emergency surgeries that were delayed, potentially increasing the risk for burnout in all anaesthetists [7].

In drawing attention to the gender inequity among anaesthetists during COVID-19, we must also address the role that structural racism plays in workplace discrimination and access to opportunities, such as promotions and leadership roles. Currently, women anaesthetists of varying racial and ethnic backgrounds might be experiencing heightened forms of burnout given the racial climate following the death of George Floyd in the USA. Women anaesthetists who identify as Black, indigenous or people of colour may carry additional stress related to the multiple forms of racial discrimination and/or microaggressions experienced on a daily basis within the workplace [52, 53]. Repeated and prolonged exposure to these stressors contributes to the onset of burnout or similar mental health

issues as well as worse physical health and job performance [54].

Emerging research on the intersections of gender, mental health and COVID-19 suggests that healthcare workers who identify as women are more likely to experience mental health symptoms during the pandemic [4]. In a cross-sectional survey in China of over 1200 healthcare workers in 34 hospitals treating patients exposed to COVID-19, of whom 77% were women and 61% were nurses, women reported more symptoms of depression and anxiety, more distress and more severe insomnia [23]. Similarly, controlling for confounders, being a woman was associated with severe symptoms of depression, anxiety and distress [23]. There may also be ill effects on healthcare workers' mental health in the longer term, as was observed up to one year following the SARS outbreak [55], with women at potentially greater risk given the numerous gender differences in the development and maintenance of post-traumatic stress disorder [56]. Indeed, one recent study found that women were more likely to report post-traumatic stress symptoms of re-experiencing negative alterations in cognition and mood and hyper-rousability one month after the COVID-19 outbreak in Wuhan, China [57].

These findings are further exacerbated when analysed in the context of limited social support or experiences of gender-based violence. Social isolation and loneliness are strongly associated with symptoms of depression and anxiety, whereas strong social networks and social relationships are negatively associated with depression, anxiety and suicide [58]. This appears to hold true during the current pandemic as at least one small cross-sectional study of 180 medical staff treating patients with COVID-19 found social support was negatively associated with anxiety and stress levels and positively associated with self-efficacy and sleep quality [59]. Thus, gender differences in perceived social support, types of social support, social networks and willingness to seek out social support may moderate the relationship between COVID-19-related stress and poor mental health. Globally, approximately 243 million women have experienced physical and/or sexual abuse by an intimate partner or a perpetrator [10]. In Australia, 40% of healthcare workers have had victims of domestic violence request help from them [10]. Violence against women tends to increase during emergencies [10]. Staying at home during the current pandemic has increased the likelihood of gender-based violence and domestic abuse [45]. The United Nations reported a 'horrifying global surge' [60] in domestic violence linked to the imposed quarantine. Although data are scarce, one Australian study

shows that nearly half of healthcare workers who are women have experienced domestic abuse, highlighting the need to be aware of and attentive to signs of domestic abuse within our colleagues [61] as gender-based violence can occur in all women irrespective of social or economic circumstances.

Burnout is more likely to occur when physicians do not perceive adequate and/or appropriate support from managers, supervisors and healthcare organisations [5]. Moving forward, during and following the COVID-19 pandemic, it is imperative that anaesthesia departmental and organisational leadership create and implement strategies that support a culture of self-care and organisational justice [48], demonstrating their ongoing commitment to engage and support physicians. This includes acknowledgment that existing gender and other social disparities within anaesthesia are heightened given the public health-related restrictions and closures, and amplifications of work and home duties. To ensure proper support for all anaesthetists, feedback regarding work hours, resources, opportunities and other pertinent work-related issues should be actively sought in a safe and open environment to ensure all voices are heard and attended to.

As anaesthetists, we work in dynamic multidisciplinary settings with the same collective group over years; working in such close proximity with trainees, nurses, surgeons and fellow anaesthetists, we become familiar with our colleagues' personalities and develop friendships. We are thus in a privileged position to be able to detect first clues in changes in colleagues' mental health, thereby providing us the opportunity to offer support or suggest resources to others who are experiencing burnout, mental health issues or intimate-partner violence (see Fig. 1). Given the negative physical and psychosocial impacts of burnout, it is important for anaesthetists to remain vigilant and attentive to their own needs while also remaining open and receptive to the needs of others.

Studies on gender differences in coping style and in the use of mental health services show that women are more likely to reach out for help and do so earlier than men [62]. Despite this, we cannot count on these trends being applicable to all anaesthetists, all women, or women who work in healthcare. In fact, studies show that people from socially marginalised racial and ethnic backgrounds are less likely to seek mental health support, not necessarily due to stigma, but more so due to the view that the current mental health systems and services in place cause harm to people who identify as Black, indigenous or people of colour [63]. While there have been worldwide efforts to reduce the negative attitudes and beliefs associated with mental illness, the stigma in healthcare settings remains high and likely

WAYS TO COPE (DURING COVID-19) WITH:

	Stress ^a	Insomnia ^b	Burnout	Mental Illness ^c	Domestic Abuse ^d
Personal Level	<ul style="list-style-type: none"> Control what you can during COVID-19 and cope with what you cannot. Remember and connect to the meaning of your work. Stay connected to caring family and friends. Remain calm with mindfulness, yoga, meditation, humor, & gratitude. Care for yourself with physical activity, healthy nutrition, & sleep. 	<ul style="list-style-type: none"> Limit screen time prior to bed. Exercise during the day. Limit caffeine intake to early in the day. Limit alcohol intake. Use melatonin or adjunctive therapies under your physician's guidance. 	<ul style="list-style-type: none"> Activities: mindfulness; meditation; yoga. Stress management training. Virtual meetings with family, friends, and colleagues. Maintain daily routines. Effective communication skills. 	<ul style="list-style-type: none"> Know that mental illness can happen to any of us. It is okay to not be okay. Be aware of signs and symptoms of anxiety, depression, and addictions. Stay connected to a trusted colleague. Know what mental health resources are available to you, and where you would go in a crisis. Reach out to these resources early. 	<ul style="list-style-type: none"> Create a safety plan & packing list. Identify a point person in the event of having to leave. Develop cues with your neighbour in the event of an emergency. Make and keep copies of important personal documents. Keep some essentials ready if you need to depart quickly. If you have children, consider their safety. Contact a crisis & support hotline and/or police services. Never blame yourself.
Institutional Level	<ul style="list-style-type: none"> Advocate for adequate personal protective equipment (PPE). Practice early and transparent communication about pandemic practices. Offer communication skills training. Offer online yoga and meditation training. Hold webinars on stress and stress management. Offer COVID-19 testing and level of PPE to ensure uniform and equitable protection. 	<ul style="list-style-type: none"> Ensure time off to rest and get sufficient sleep. Offer access to cognitive behavioural therapy for insomnia (CBTi). 	<ul style="list-style-type: none"> Duty hour restrictions. Set up peer and non-peer support systems. Focus on enhancing teamwork. Organize 'Thankfulness' events. Offer webinars on burnout prevention. 	<ul style="list-style-type: none"> Offer webinars of signs and symptoms of anxiety, depression, suicide, and addictions. Promote available mental health resources. Allow time off work if required. Support colleagues while off and in transition back to work. 	<ul style="list-style-type: none"> Offer webinars of signs and symptoms of anxiety, depression, suicide, and addictions.
Government Level	<ul style="list-style-type: none"> Ensure adequate PPE availability. Increased healthcare funding for increased human resources. Offer digital mental health programs. 	<ul style="list-style-type: none"> Increase mental health resources to offer CBTi to healthcare workers. 	<ul style="list-style-type: none"> 'Thankfulness' events. Increased healthcare funding for increased human resources. 	<ul style="list-style-type: none"> Increase mental health resources, including psychology and psychiatry. 	<ul style="list-style-type: none"> Increase mental health resources, including psychology and psychiatry.

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Figure 1 A non-exhaustive list of steps that can be implemented to mitigate burnout and stress-related COVID-19 issues at all levels.

contributes to a lack of help-seeking behaviour [64]. Pre-existing biased and tenacious representations of men as 'agentic' and women as 'communal' that have repeatedly been demonstrated to occur in healthcare settings, as well as in anaesthesia [35], may also contribute to gender differences in both stress-related coping styles and help-seeking behaviours. Men may be less likely to report burnout as social expectations dictate 'toughness'; on the other hand, women may be reluctant to report burnout so as to not confirm gendered preconceptions of women as 'weak' or vulnerable. Thus, it is even more imperative that healthcare leaders ensure there are accessible programmes in place to allow for informal sharing and debriefing of experiences, implementation of peer support and offering counselling and psychiatric assistance if required, all the while dismantling these socialised gender roles. However, equally important is ensuring that these programmes are tailored to the needs of all anaesthetists and healthcare

workers, including features proven beneficial to men, women, gender non-binary and people from various racial and cultural backgrounds [43].

We conclude by encouraging anaesthetists and all healthcare workers to stand true to the value of solidarity by looking out for each other and creating a safe, equitable and caring environment for all. Although we may not be able to single-handedly address all the pre-existing gender differences and inequities intensified during the current pandemic, we can certainly do our part by being mindful and cognisant of people's lived realities and the multiple intersecting burdens they may experience; we can strive to treat each other, and ourselves, with understanding, kindness and compassion.

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