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Mental illness and suicide among physicians

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The COVID-19 pandemic has heightened interest in how physician mental health can be protected and optimised, but uncertainty and misinformation remain about some key issues. In this Review, we discuss the current literature, which shows that despite what might be inferred during training, physicians are not immune to mental illness, with between a quarter and a third reporting increased symptoms of mental ill health. Physicians, particularly female physicians, are at an increased risk of suicide. An emerging consensus exists that some aspects of physician training, working conditions, and organisational support are unacceptable. Changes in medical training and health systems, and the additional strain of working through a pandemic, might have amplified these problems. A new evidence-informed framework for how individual and organisational interventions can be used in an integrated manner in medical schools, in health-care settings, and by professional colleagues is proposed. New initiatives are required at each of these levels, with an urgent need for organisational-level interventions, to better protect the mental health and wellbeing of physicians.

Introduction

Being a physician has long been considered one of the most rewarding and sought-after occupations. However, this work also comes with stressors, some unique to the medical profession, others typical of high-pressure, highly skilled occupations. International attention on mental ill health and suicide among physicians has increased.¹ Similar discussions have occurred within other professions, including lawyers, first responders, construction workers, and teachers, with each profession concerned that there might be something inherently psychologically toxic about their work that contributes to the high rates of mental ill health that are reported in these industries.^{2,3} In the medical community, this concern has escalated after a number of high-profile suicide clusters among physicians and, over time, by an increasing amount of data highlighting high rates of mental health symptoms,^{4,5} suicidal ideation,⁶ and completed suicide.^{7–9} These reports have forced the medical profession to reconsider its own vulnerability. In this context, key professional bodies in different countries have issued calls to action, demanding a greater focus on physician mental health within training programmes, workplaces, and the health service more broadly.^{10–12} The importance of this issue goes beyond the desire of the medical professional to look after their peers. Having a healthy, functional workforce of physicians is one of the most important parts of any country's health system,¹³ with prospective studies showing, for example, that

depressed physicians make six times more medication errors than healthy staff,¹⁴ with mental ill health or substance misuse a common cause for impairment inquiries by medical regulators.

Despite the rapid increase in the prominence of physician mental health as a topic of interest, uncertainty and misinformation remain about some of the most basic facts surrounding physician wellbeing, and which individual, organisational, and systemic interventions should be prioritised, if any. In this Review, we summarise the available international evidence, to clarify some of the main facts surrounding physician mental health. We also consider a range of potential solutions, including the evidence base for each, and offer recommendations for health services and those in charge of medical training worldwide.

Definitions

The term physician can have different meanings in different countries. Although many of the following issues apply to an array of health-care occupations, we focus specifically on physicians who are medical doctors. We also take a broad view of mental health, to include both the absence of mental disorder as well as a positive state of mental wellbeing.

How common are mental health problems among physicians?

Physicians can be affected by the full spectrum of mental disorders, as well as a range of issues that affect their wellbeing, such as burnout. Like in the general population, the most common mental disorders reported among physicians are depression and anxiety. Given that depression is most likely to emerge before 30 years of age and anxiety disorders tend to have an even earlier age of onset,¹⁵ it is unsurprising that most of the studies examining mental health disorders among physicians tend to focus on those in training, or resident physicians. In 2015, a landmark systematic review and meta-analysis collated the results from 54 separate cross-sectional and longitudinal studies involving over 17 500 resident

Search strategy and selection criteria

We identified references for this Review through searches of MEDLINE, Embase, PsycINFO, and Google Scholar. These searches were done in 2019, with focused updated searches done in 2020. We searched for studies published from databases' inception to Nov 3, 2020. Publications in English were identified with various search terms for "mental disorder", "burnout", "substance misuse", or "suicide" combined with "physicians" or "doctors".

physicians from 18 countries.⁴ Similar numbers of physicians with depression symptoms were reported regardless of the country and specialty being examined, with a pooled estimate of depression caseness (the number of physicians scoring highly enough on a measure of depression to be considered as having clinically significant depressive symptoms) of 28.8% (95% CI 25.3–32.5).⁴ Fewer studies have examined anxiety disorders among physicians, with the small number of cross-sectional studies suggesting rates of generalised anxiety disorder as high as 24%,¹⁶ and rates of post-traumatic stress disorder ranging between 4% and 16%.^{17,18}

The results of these cross-sectional surveys often lead to statements that the rates of mental disorder in physicians are substantially higher than those in general population surveys. However, further consideration should be given into whether general population surveys are the most appropriate comparison group. A meta-analysis done by Goodwin and colleagues¹⁹ reported strong evidence that occupational studies tend to produce higher estimates of depression and anxiety symptoms than general population surveys, regardless of which occupational group is considered. The authors suggest that symptoms might be over-reported when participants know that they have been recruited to a study on the basis that they belong to a specific occupational group, particularly when these same surveys focus on reports of workplace stress. In this case, over-reporting of symptoms might reflect job dissatisfaction rather than mental ill health more generally. Given that occupation studies might report inflated estimates of mental health symptoms, a more appropriate comparison for surveys of physicians might be pooled estimates from similar surveys of other occupational groups. A survey of over 12 000 Australian physicians showed that 27.2% (95% CI 26.4–28.1) reported symptoms of depression and anxiety above a predefined cutoff score that indicated a high likelihood of a minor psychiatric disorder, using the General Health Questionnaire 28 (GHQ-28).²⁰ Goodwin and colleagues' meta-analysis reported a pooled prevalence estimate for caseness using a shortened, equivalent measure (GHQ-12) across all occupational surveys at 29.6% (95% CI 27.3–31.9).¹⁹ This finding implies that the results of this Australian survey, and most other international surveys of physicians, might be better described as showing that physicians are not immune to the types of mental health problems seen in other occupations (figure 1).

Burnout among physicians

Burnout is a concept that was first described by Freudenberg,²¹ although its measurement and consequences have been made more widely known by Maslach.²² Described as primarily a social or organisational problem, not an individual one,^{23,24} burnout is characterised by emotional exhaustion, cynicism, and feelings

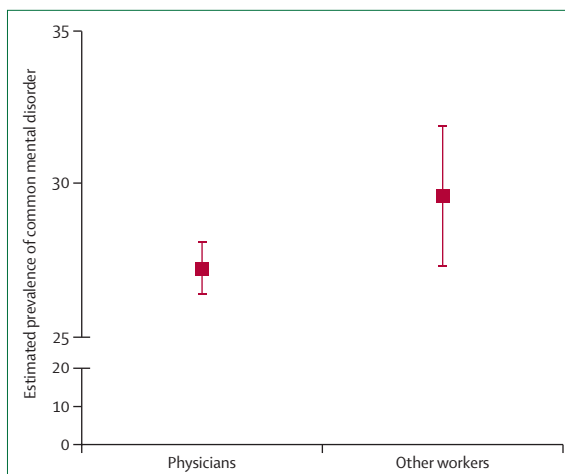


Figure 1: Estimated prevalence of common mental disorders in physicians compared with other occupational groups

Comparison between rates of common mental disorder (as measured by self-reported symptoms using the General Health Questionnaire) among physicians and other occupational groups (including teachers, academics, manual workers, military personnel, social workers, and white-collar workers).^{19,20}

of being ineffective.²² In 2019, WHO further described burnout in the 11th Revision of the International Classification of Diseases as a syndrome (not an illness or health condition) resulting from “workplace stress that has not been successfully managed”.²⁵ Even before this recognition by WHO, a range of research reports had suggested that a large, and increasing, number of physicians might be experiencing burnout.^{26–30}

Symptoms subsumed within the construct of burnout are common among physicians and are associated with substantial suffering, physicians leaving the profession or reducing their hours, and moral distress. In terms of individual health, burnout symptoms are associated with a higher risk of road traffic collisions,³¹ sickness absence for both mental and cardiovascular disorders,³² and all-cause mortality.³³ At an organisational level, burnout is associated with higher sickness absence rates, reduced productivity, and early retirement.^{32–36} Several studies have also linked physician burnout with adverse clinical events, unprofessional behaviour, and lower quality of patient care.^{37–40}

However, the construct of burnout also presents some difficulties. As a relatively newly defined phenomenon, definitions, measures, and thresholds are in evolution, and such imprecision has made rigorously investigating burnout among physicians challenging. A 2018 systematic review of 182 studies of burnout in physicians done across 45 countries reported that studies used different definitions of burnout, although studies using the more common measures (such as the 22-item Maslach Burnout Inventory–Human Services Survey criteria) reported a prevalence of 25% to 50%.⁴¹ Although the effects of relatively mild or infrequent symptoms on the individual might be debatable,^{42,43} taken collectively, any changes

in burnout throughout an organisation might be an important indicator of organisational culture and wellbeing.

Furthermore, debate continues regarding the association between burnout and depression.⁴⁴ Although there is symptomatic and epidemiological overlap, burnout is defined as arising predominantly from workplace problems, whereas depression is agnostic to the cause; it is possible to be burned out and not depressed, and vice versa, or both. Burnout and depression are related but have distinct symptoms and, as a result, require different prevention and management approaches; for example, antidepressant medications are a proven treatment for depression, but these medications might not be an appropriate intervention for burnout. Care must be taken to ascertain whether physicians reporting burnout might have an underlying depressive disorder amenable to evidence-based treatment if appropriately identified, and whether physicians' reports of depression suggest occupational factors that contribute to distress. Also, overlap might exist between a diagnosis of post-traumatic stress disorder and anxiety disorders with health professionals' experiences of vicarious trauma, moral distress, and workplace abuse, but these associations have been better described in nurses than in physicians.⁴⁵

Physician suicide

General and most cause-specific mortality rates are low in physicians compared with the general population,⁴⁶ presumably due to an enhanced version of the healthy worker effect, which occurs when observational studies underestimate mortality rates in employed populations compared with the general population because employed populations exclude individuals who are ill or disabled and therefore unable to work.⁴⁷ Education and high incomes might also drive lower mortality rates. However, suicide rates appear to be a notable exception,⁴⁸ with a 2019 systematic review and meta-analysis calculating an overall standardised mortality rate of 1.44 for suicides among physicians.⁴⁹ Female physicians appear to be at particular risk, with a 2020 meta-analysis reporting female physicians had a suicide rate that was significantly higher than women in the general population.⁵⁰ Estimates suggest that, in the USA, one doctor dies by suicide per day.¹⁰ Although physicians have similar prevalence rates of depression and anxiety to those reported by other occupations, they are at disparate risk of suicide. This risk contrasts with the general trend for greater risk of suicide in lower skilled occupational groups.⁵¹ In a Danish national register-based study, physicians had a higher risk of suicide than any of the 55 other occupations considered, and risk estimates further increased after sociodemographic factors were taken into account.⁵²

Access to lethal means, and the knowledge to effectively use such means, is one of the most important reasons for the increased risk of suicide in physicians.⁵³

This hypothesis is supported by the observation of a similarly high suicide rate in other health professionals with such access, including nurses, dentists, and pharmacists.⁹ A further factor in explaining suicide rates among physicians might be specific barriers that prevent timely access to treatment and support. The small number of published studies have estimated rates of help-seeking among physicians with mental disorders to be between 13% and 36%.⁵⁴⁻⁵⁷ Physicians with mental health problems might be more reluctant than non-physicians to seek help for a variety of reasons,⁵⁸ with major barriers including fears regarding confidentiality, the potential consequences for their career, medical registration, and licensure, as well as insufficient time and a belief that they can manage any symptoms by themselves.^{20,59} Qualitative studies of physicians who have had mental health problems have shown a high prevalence of self-stigma, often driven by views that doctors should be invincible, as well as a fear of discrimination.⁶⁰ These factors act as major barriers to seeking help and recovery, alongside considerable cultural stigma among the medical profession.⁶⁰

Notably, there is emerging evidence of a link between area of specialty and risk of suicide, with a 2019 review suggesting that anaesthetists, psychiatrists, general practitioners, and general surgeons might have higher rates of suicide than other specialists.⁶¹ If confirmed, it is unclear if this finding is due to these specialists having higher rates of mental ill health, greater access to high lethality means, more barriers to seeking help, or a combination of these and other factors. For example, the apparent increased risk of suicide among anaesthetists appears to be related to a combination of higher rates of psychological distress in addition to access to lethal means.²⁰

Substance misuse among physicians

Most research investigating alcohol and substance misuse among physicians has been done through large-scale self-report surveys. Research suggests that between 5% and 20% of doctors across a range of high-income countries consume alcohol problematically (usually determined by the Alcohol Use Disorders Identification Test scores or related instruments). In a sample of 7209 American physicians, 1100 (15.3%) reported scores indicative of alcohol abuse or alcohol dependence,⁶² with a similar prevalence reported in American surgeons.⁶³ In a national sample of Danish doctors (comprising specialists, trainees, and general practitioners), the prevalence of hazardous alcohol use was identified in 18.9% of respondents.⁶⁴ This study also reported that of the 383 physicians who reported risky substance misuse (alcohol or other drugs, or both), 76.9% felt their substance misuse was unproblematic. A smaller UK-based study reported that 22 (20%) of 109 doctors drank alcohol nearly exceeding, or exceeding, recommended levels,⁶⁵ although only 5% of doctors from another study

met the criteria for alcohol dependence.⁶⁶ These results suggest that, compared with the general population, physicians might consume alcohol at a similar rate, or perhaps at a higher rate.^{62,67} This trend appears to have been maintained over the past 30 years.⁶⁸

Self-report data suggest that a substantial proportion of physicians have experimented with illicit substances at some point in their lifetime.⁶⁸ However, use in the 12-month period before the study was lower than for the general population. An exception to this finding is the use of prescription drugs (eg, benzodiazepines and minor opiates), which was higher than general population estimates and often self-prescribed.⁶⁸⁻⁷⁰ This trend appears to remain consistent over time and across different countries, with 2012 data from Australian doctors finding 5% reported using illicit substances at some point, and 6% reported using self-prescribed drugs for the treatment of symptoms of depression or anxiety daily.²⁰

Whether an association exists between certain medical subspecialties and the use of different substances is often debated, with much anecdotal evidence and some older studies focusing on anaesthesiology as a specialty perceived as being at high risk.⁷¹⁻⁷³ In the past 10 years, studies have reported a different pattern, with the highest prevalence of hazardous alcohol consumption among dermatologists and orthopaedic surgeons,⁶² or internal and emergency medicine specialities.⁶⁴ Contrary to this finding, data from Australia suggested little difference between doctors working in different specialty areas in terms of alcohol use.²⁰

Unfortunately, it is difficult for physicians to seek help for alcohol or substance misuse problems. The lack of early help-seeking among physicians is concerning, given the potential effect of substance misuse on a physician's work performance. A survey of American surgeons and a similar study of physicians found that in the 3 months before the study, most physicians who reported a medical error also reported alcohol abuse or dependence.^{62,63} Estimates suggest that the effects of alcohol could account for up to 5% of instances of suboptimal patient care.⁷⁴

Risk factors for mental ill health and suicide among physicians

Although mental ill health appears no more prevalent in physicians than in other occupational groups, the fact that it is not lower should be concerning. Many of the risk factors for poor mental health reflect psychosocial disadvantage,⁷⁵ which is relatively uncommon among physicians. One factor often cited when physician mental health is discussed is their exposure to human suffering and death. Physicians working in conflict zones or in low-income and middle-income countries (LMICs) face unique challenges, including threats to their own or their family's safety,⁷⁶ and that physicians and other health-care workers are often at the frontline of public health responses to major critical incidents and emergencies,

such as natural disasters,⁷⁷ terrorism, or as recently evidenced, infectious disease outbreaks such as COVID-19.⁷⁸ Although major events can cause increases in mental ill health among physicians, routine exposure to human ill health and suffering is not always the precipitant of mental ill health among physicians.⁷⁹ Instead, more typical psychosocial workplace risk factors,⁸⁰ such as excessive or conflicting job demands, an imbalance of work and family life, long working hours, and interpersonal conflict, are often more important in explaining much of the variation in mental ill health among physicians.^{81,82} Additional risk factors appear relevant for junior physicians during training, including excessive working hours, study, and examinations.^{83,84}

Although the role of work-based risk factors can be important, it is essential that the role of protective factors in the workplace also be considered. Decades of research has shown that the mental health impact of demanding jobs can be buffered, to some degree, by high levels of control at work, peer-based social support,^{85,86} and a belief that one's efforts are adequately rewarded through pay and intangibles.⁸⁷ For many years, most physicians have enjoyed high levels of autonomy, control over their working lives, social support from their peer networks, as well as public esteem, remuneration, and social status.⁸⁸ All of these factors probably have provided some protection against the negative effects of the stressful aspects of a medical career. However, in many countries physicians face increasing bureaucratic and administrative burden and an erosion of many of these protective factors.

In addition to risk factors common to all physicians, there might be additional risk factors that operate at certain stages of a physician's career. A review of prospective studies identified particularly high rates of depression and suicidal ideation among physicians during their first postgraduate internship year.⁸⁹ These findings are consistent with a later prospective cohort study of 740 interns from multiple specialties across 13 institutions in the USA, finding an increase in depression symptoms across the intern year of six times that of physicians further along in their career.⁹⁰ Other international studies have reported that rates of depressive symptoms and suicidal ideation appear to be consistently higher during training and residency, before reducing among consultants and more experienced physicians.²⁰ Although to some extent these differences probably mirror the different prevalence rates observed in the general population among different age groups, the differences might also reflect the effects of unique stressors operating during physician training, such as examination stress, financial pressures, and job insecurity.

Are things getting worse for physicians? Recent trends in the mental health of physicians

There is some evidence that rates of mental ill health symptoms might have gradually increased among

physicians in the past three decades, with one meta-analysis suggesting that the prevalence of depression has increased an average of 0.5% per year.⁴ Some of this apparent trend might reflect an underlying cohort effect present in the observed rise of mental ill health in young people (≤ 25 years) in the general population. Additionally, medical courses have changed radically in many countries, with a widespread move to more graduate medical education.⁹¹ Although this shift does not appear to have brought about the hoped for improvements in medical school completion rates or intern year performance,⁹² more years as a student has resulted in junior doctors qualifying with more debt and a higher likelihood of having competing family responsibilities during early training, both of which are risk factors for poor mental health.

At the same time that some risk factors appear to have increased, a number of protective factors previously present for physicians have been on the decline.⁹³ Physicians' sense of control and autonomy have been undermined by increased administrative burden, external roster scheduling, electronic records, and health system constraints that have tended to increase year on year.⁹⁴ Furthermore, there has been a shift in physicians' expectations of their career, with medical schools producing graduates who tend to be much more focused on achieving an acceptable work–life balance, not just because of a more balanced gender mix, but because society and successive generations have placed a higher value on work–life balance.⁹⁵

The ongoing COVID-19 pandemic has raised further concerns about physician mental health. Across the world, physicians have been on the front line while caring for patients infected with SARS-CoV-2. Health systems in many countries have been overwhelmed with unprecedented pressure on critical care facilities, forcing physicians to make decisions about the allocation of scant resources.⁹⁶ Early in the pandemic, there were shortages of personnel protective equipment, with as many as 20% of the workforce caring for those with COVID-19 becoming infected themselves, meaning many physicians witnessed their colleagues becoming seriously unwell or dying due to their work.⁹⁷ Over the past 12 months, there has been a surge of studies examining the mental health impact of COVID-19 on the health-care workforce. These studies tend to show an increase in acute self-reported symptoms of depression and anxiety, as well as high rates of insomnia and distress.⁹⁸ For example, a study surveying health-care workers (including 493 physicians) from areas most affected by the COVID-19 pandemic, such as China, showed that 225 (46%) reported mild-to-severe depression symptoms, 200 (41%) reported mild-to-severe anxiety symptoms, and 330 (67%) reported mild-to-severe post-traumatic stress symptoms.⁹⁹ Long-term follow-up studies of health workers who have worked in previous pandemics, such as the 2003 outbreak of severe acute

respiratory syndrome, suggest that for some individuals (potentially as many as one in ten) these early distress symptoms will progress to longer lasting mental health conditions, such as post traumatic stress disorder.¹⁰⁰

The mental health of physicians in LMICs

Most evidence available on physician mental health comes from high-income countries.⁴ Physicians working in LMICs face a range of specific challenges. The health systems and health policies in LMICs are often less well developed and have fewer resources than high-income countries. Physicians comprise a smaller proportion of the health-care workforce in LMICs, with a greater reliance on non-specialist, lower-skilled health-care providers. The global shortage of physicians in LMICs, estimated to be a deficit of 2.8 million physicians by 2030,¹⁰¹ means that those physicians remaining in these systems often face highly stressful working conditions, major resource and infrastructure constraints, poor career and development opportunities, and income disparities, all of which can negatively affect mental health. If physicians in LMICs develop mental health symptoms, they might be less able to access evidence-based psychological treatments than physicians in higher-income countries.^{102,103}

Single studies of small samples have shown substantial rates of depression, stress, and anxiety symptoms among physicians from a specific LMIC, such as Vietnam,¹⁰⁴ North India,¹⁰⁵ China,¹⁰⁶ Bangladesh,¹⁰⁷ Turkey,¹⁰⁸ Pakistan,¹⁰⁹ and occupied Palestinian territory.¹¹⁰ A smaller number of studies of medical residents have also shown that burnout can also be an important issue among physicians in LMICs.^{111,112} However, to our knowledge, there has been no comprehensive analysis published concerning the overall burden of common mental disorders among physicians across LMICs. Almost all of the studies examining suicide among medical professionals have also been done primarily in high-income countries, meaning the scale of this issue among LMICs is largely unknown.

Potential solutions

Interventions to improve physician mental health

Multiple medical professional bodies have called for a greater focus on physician mental health.^{10–12} Although arguing that action is needed is relatively straightforward, defining what actions the medical profession, education, and health-care systems should take is more difficult. The best evidence for how to create more mentally healthy workplaces suggests that a coordinated range of different initiatives are needed, extending from prevention through to recovery and return-to-work, and implemented at both the individual and organisational level.^{3,113,114} Although this type of framework has been used effectively in other industries, such as first responders, the unique characteristics of the health-care system and medical training mean that such frameworks will need to be modified for physicians.^{115,116} Most obviously, many physicians do not have a single line

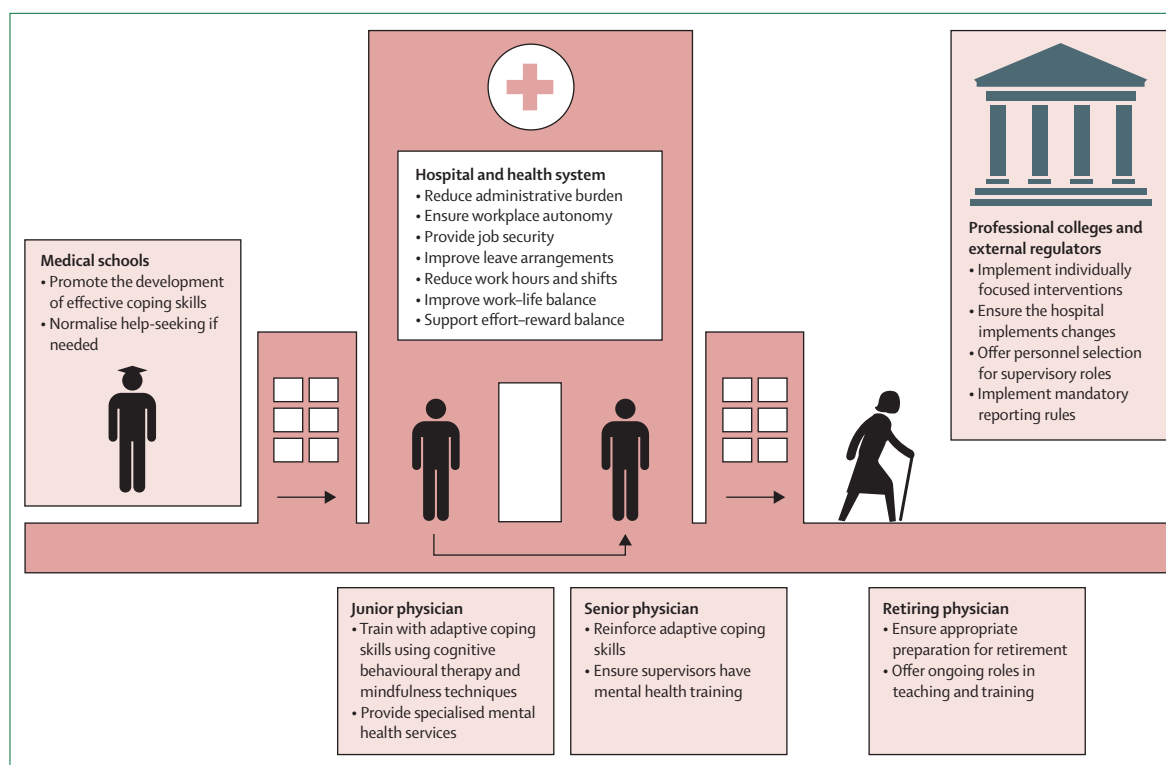


Figure 2: A model for how individual and organisational measures could operate to improve physician mental health throughout a physician's career

manager to whom they report; they might be employed by a health service, but report to a professional college for their training or accreditation, while having a separate agency as their regulator. Trainee physicians also change colleagues, seniors, and work settings frequently, and undertake rural or regional placements, challenging their engagement with uncoordinated initiatives. Given this complexity, any systematic attempt to improve the mental health of physicians will need to consider how this mobile group can be provided with a coherent suite of interventions and policies that follow physicians from the start of their medical career through to retirement, across different training and employing institutions. A model for how this approach might operate is shown in figure 2, which highlights the three key levels at which interventions focused on physicians' mental health need to operate: the individual physician, the health system and the professional colleges, and the external regulators. Although interventions aimed at individual physicians are discussed in this Review, this approach should not be considered the most important. Quite the contrary is true; there is clear evidence that physicians as a group do not have a deficit in resilience,¹¹⁷ and that a greater focus on organisational measures is urgently needed.¹¹⁸

The individual physician

The foundation for developing physicians who are able to develop healthy habits and self-awareness, can ask for

help when needed, and use effective coping mechanisms at times of stress needs to be established in medical schools. Simply inserting mental health awareness lectures into an already crowded medical student curriculum is unlikely to be effective and might even have adverse consequences, such as creating unnecessary anxiety and fostering a sense of vulnerability. What is more likely to be effective, but is still untested, is the evolution of a medical student curriculum that allows for progressive development of self-awareness and effective coping skills and that encourages peer support, resilience, and optimism, while normalising appropriate help-seeking when needed.^{119,120}

There is often a marked increase in mental health symptoms in the first few years of a junior doctor's working life. This transition period probably represents a further opportunity for reinforcing adaptive coping skills. A 2019 systematic review reported that individually-focused interventions for physicians, including teaching cognitive behavioural therapy or mindfulness-based techniques to deal with stressful situations or early symptoms, resulted in a moderate reduction in symptoms of depression and anxiety as well as reduced symptoms of suicidal ideation.¹²¹ Similar results have also been noted for individual-level interventions aimed at reducing physician burnout.^{30,122,123} One of the key challenges for these interventions is how they can be taken to scale. One potential solution is the use of eHealth and mobile

phone apps, which have been shown to be an effective and more feasible way (than face-to-face) to deliver these types of interventions in other occupational groups.¹²⁴ To our knowledge, there is only one published randomised controlled trial of this type of eHealth intervention among physicians, which was able to halve the rates of suicidal ideation among interns,¹²⁵ with a trial of a mental health app for trainee physicians underway in Australia.

Although encouraging help-seeking among physicians is important, it is vital to ensure that good quality services and appropriate treatment is available when physicians seek additional support. In some countries, specialist mental health services have been created for physicians. The potential advantage of such services is that additional steps can be taken to ensure confidentiality and physicians can be reassured that they are working with specialists in managing other medical practitioners.¹²⁶ The outcome data from a specialist service set up for physicians in the UK suggest that such services are well liked and used and are able to promote successful return to functioning for many individuals who use them.¹²⁷

The health system

Modifications within the health system should aim to minimise work-based risk factors and promote protective factors. Although conceptually compelling, organisational interventions have been under-researched among physicians. Systematic reviews have supported the idea that there have been no published randomised controlled trials of organisational interventions that consider mental disorder as an outcome, and that there have been only three trials focused on organisational interventions for burnout.^{30,121} Although very limited in number, these studies have showed that interventions such as modifications to work processes and shortening of shifts can lead to an improvement in some mental health outcomes.³⁰ In fact, the result of one meta-analysis suggests that the positive effects of such organisational interventions on burnout symptoms are significantly greater than a range of individually-focused interventions.¹²⁸ Given that burnout is conceptualised as an organisational problem, such findings are not surprising. Team training, reducing cognitive load resulting from meaningless administrative tasks and poorly-designed electronic health records, and flexible scheduling also might help to reduce burnout.^{30,129} Using clinician wellbeing and the financial costs associated with burnout as quality metrics for health-care organisations might draw attention to the problem and promote change in the organisation of health-care delivery, to promote greater clinician wellbeing.^{130–132} A consensus study report by the US National Academy of Medicine has provided guidelines aimed at redesigning clinical systems to allow physicians to focus on the human aspects of care and to promote physician wellbeing. The organisation recommend a multifaceted system-based approach, including initiatives to reduce administrative

burden, to optimise use of health-care technologies, and to foster a more positive working environment.¹³³

Given what is known about the role of risk and protective factors, it is probable that there are other (currently untested) organisational interventions that could also be effective in improving physician mental health. These interventions include strategies to improve physician autonomy and control in the workplace, job security, leave, and other policies that reduce work–family conflicts, as well as a range of other initiatives to support an appropriate effort–reward balance.⁸⁰

Professional colleges and external regulators

In many countries, the professional medical colleges have near absolute control of specialty training programmes and the requirements of both the individual physicians and the health-care systems that train them. Therefore, these agencies are in a powerful position to influence the job design and working conditions of junior physicians as well as to promote, or even mandate, some of the individual-focused and organisational-focused interventions. Additionally, training colleges can also ensure that the individuals who they place in charge of mentoring and training junior physicians are equipped to be able to better support and manage the next generation of physicians. In other industry groups, training leaders to recognise and respond to junior staff in need of assistance has been shown to result in sustained improvements in their own behaviour, with some measurable benefits reported among those individuals who they manage.^{134,135} Although similar trials are yet to occur among medical leaders, a number are in process (eg, ACTRN12619001496101) and it is hoped that similar positive results will be observed.

In addition to this role of controlling specialty training programmes, external regulators set the environment in which physicians need to operate when considering seeking help for a mental health condition. Rules regarding the mandatory reporting of mental ill health can affect physicians' willingness to seek help. In one US study, physicians working in a state where medical licence applications and renewal forms asked specifically about mental illness were 20% less likely to ask for help if needed.⁵⁹ Early intervention for psychiatric symptoms, as well as ensuring that decisions about registration and ability to work are focused on functional impacts of symptoms (not specific diagnoses or treatments), is essential in preventing attrition from medical training and premature retirement.

Conclusions and future directions

The mental health and wellbeing of physicians has been neglected for too long. There is overwhelming evidence that, despite what might be inferred during traditional undergraduate and postgraduate education, physicians are not immune to mental illness and are, in fact, at greater risk of suicide than most other professional

groups. The strain placed on physicians across the world during the COVID-19 pandemic has probably worsened this situation. Action is needed to better protect the mental health and wellbeing of physicians, particularly those early in their career.

There is an emerging consensus that some aspects of physician training, working conditions, and support are unacceptable. Importantly, there is also a recognition that many of the changes that have occurred in medical training and health systems over the past three decades have amplified these problems and eroded the protective factors that previously offset the risks inherent in physician work. Common issues, such as administrative and bureaucratic burden, job insecurity, reduced job control, and a shift in the age and priorities of medical graduates, appear across the international medical community and probably help to explain some of the growing mental health concerns among physicians. There remains a striking absence of information about the mental health of physicians working in LMICs, although there are sound reasons to suggest these physicians might be under great strain.

Urgent action from a range of stakeholders is needed to radically rethink the training and employment conditions of physicians. In this Review, we have outlined how a range of integrated initiatives can be implemented at the level of the individual physician, health system, and professional colleges and external regulators. New initiatives are required at each of these levels, but there is a particularly urgent need for organisational-level interventions. Although evidence shows that individual-level interventions are important, there is a risk that interventions solely focused on the individual physician might lead to the perception that lower levels of individual resilience is the key problem.¹⁷ This is not the case. The role of training programmes, leadership, and the broader health-care system must be given prominence, and evidence-based interventions focused on these areas must be given the greatest priority.

Contributors

MH and SBH developed the concept for this Review. SBH, RME, NG, KP, JS, AG, KD, and MH wrote sections of the original draft of the Review. KP led project administration, and JS, SBH, and KP created the figures. All authors reviewed and edited the Review and had responsibility for the decision to submit this Review.

Declaration of interests

SBH and KP reports grant income from iCare Foundation and NSW Health. MH was a consultant psychiatrist at the Practitioner Health Programme between 2010 and 2015. All other authors declare no competing interests.

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