Original research

Are state abortion bans an occupational health hazard for obstetrician-gynaecologists? Findings from a multistate qualitative study

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ABSTRACT

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Objectives Since the US Supreme Court's Dobbs v. Jackson decision, 17 states have imposed near-total abortion bans. These bans may negatively impact health and well-being of obstetrician-gynaecologists (OB-GYNs), due to high levels of work-related stress that the laws have created for them. The goal of the present study is to evaluate the impacts of post-Dobbs v. Jackson state abortion bans on occupational health and well-being of **OB-GYNs**.

Methods The Study of OB-GYNs in Post-Roe America is a gualitative study of 54 OB-GYNs practising in 13 of the 14 states with near-total abortion bans as of March 2023. Using volunteer sampling methods, participants were recruited for semistructured qualitative interviews via videoconference from March to August 2023.

Results Thematic analysis of interview transcripts identified six major domains of health and well-being impacts of state abortion bans on OB-GYNs: anxiety and depression, burden of negative emotions, burn-out, coping-related health behaviours, sleep disruption and personal relationships.

Conclusions State abortion bans following the 2022 Dobbs decision may impact the health and well-being not only of pregnant patients but also of their providers. These provider health impacts include mental health and burn-out but also extend to physical health outcomes and the work-life interface.

INTRODUCTION

The June 2022 Dobbs v. Jackson Women's Health Organization decision fundamentally reshaped abortion access in the USA. As of August 2024, near-total bans have taken effect in 18 states, and moderate restrictions have been enacted in 3 others.¹² The Dobbs decision is expected to have profound implications for pregnancy care provision and health equity, with early evidence suggesting that abortion bans may contribute to maternal morbidity, delay treatment for pregnancy complications, and exacerbate racial and socioeconomic inequities in obstetric care.³

Obstetrician-gynaecologists (OB-GYNs), who provide the majority of pregnancy care in the USA,⁵ represent an additional population affected by Dobbs. State abortion bans may create workrelated stress for OB-GYNs for several reasons.⁶ First, the laws are written in broad and nonmedical language, making them difficult to operationalise clinically and resulting in uncertainty

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WHAT IS ALREADY KNOWN ON THIS TOPIC
⇒ Abortion bans in US states have been hypothesised to negatively impact health and well-being of obstetrician-gynaecologists (OB-GYNs), but little empirical work has examined the depth or breadth of these health impacts.
WHAT THIS STUDY ADDS
⇒ Analysis of qualitative interview transcripts reveals six domains in which state abortion bans have impacted OB-GYNs' health and well-being: anxiety and depression, burden of negative emotions, burn-out, coping-related health behaviours, sleep disruption and personal relationships.
HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY
⇒ State abortion bans may have negative impacts on the sustainability of the reproductive health workforce in abortion-restrictive states.
Around implementation and compliance.⁷⁸ Second, penalties for violating the laws fall mainly on providers, with high consequences for those found guilty of violation, including fines, loss of medical license, felony charges and prison sentences of up

guilty of violation, including fines, loss of medical license, felony charges and prison sentences of up training to 99 years.⁹ Third, the magnitude of legal risk for OB-GYNs is uncertain, as the laws are so new that they are still untested in courts. Finally, physicians are trained to reduce current harm to patients and mitigate future risk; the idea of withholding care or waiting until the patient gets sicker is anathema to their professional code of ethics.6

Amidst these stressors and uncertainties, OB-GYNs, and their institutions, must make time-sensitive decisions about whether, when, and how to treat pregnant patients whose cases fall into legal grey areas. These grey areas include common obstetric conditions such as previable preterm obstetric conditions, such as previable preterm premature rupture of membranes, caesarean scar ectopic pregnancies, and health conditions arising during pregnancy (eg, renal failure).^{3 10} OB-GYNs report moral distress from needing to decide between providing what they perceive as substandard or inadequate care in order to stay on safe legal ground and facing possible criminal and professional repercussions if they do provide the established and evidence-based standard of care.¹⁰⁻¹³ Although post-Dobbs abortion restrictions have

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implications for a wide range of clinicians, including physicians in other specialties (emergency medicine, oncology and family medicine), certified nurse midwives and other advanced practice providers, OB-GYNs are expected to bear the brunt of these impacts.¹⁵¹⁶

An emerging literature has described the ways in which abortion bans create ethical challenges and stress for OB-GYNs.^{6 10 12 13 17 18} While our prior work described significant mental health effects of that stress,¹¹ we hypothesised that health impacts for OB-GYNs would be broader. The goal of the present study is to analyse specific domains of the laws' occupational health and well-being impacts on OB-GYNs.

METHODS

Study design

The Study of OB-GYNs in Post-Roe America is a qualitative study of OB-GYNs in states with post-Dobbs abortion bans, designed to evaluate changes to clinical practice post-Dobbs, associated moral distress and perceived impacts of abortion bans on OB-GYNs' personal and professional well-being.¹¹

Participants

Participants were eligible if they were board-certified OB-GYNs, with or without subspecialisations in maternal-fetal medicine (MFM) or complex family planning (CFP). Other OB-GYN subspecialties (eg, urogynaecology) were ineligible. Eligible participants practised in any of the 14 states where abortion became and remained illegal with narrow exceptions between June 2022 (the Dobbs decision) and March 2023 (start of data collection): Alabama, Arkansas, Georgia, Idaho, Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, South Dakota, Tennessee, Texas, West Virginia and Wisconsin. If participants had practised in an eligible state but had since moved, they were classified according to their prior state. Trainees (medical students, residents, fellows) were not eligible.

Recruitment

Prospective participants were recruited between March and August 2023 using volunteer sampling methods, including posts in social media groups for OB-GYNs, announcements on professional listservs, direct email recruitment at institutional email addresses and snowball sampling. We purposively sampled participants to achieve balance across states, practice types and participant demographic characteristics.

Data collection

The team developed and piloted a semistructured interview guide with questions in five domains: (a) professional background; (b) perspectives on abortion laws; (c) impact of bans on clinical practice and associated experiences of moral distress; (d) health and well-being impacts of laws on participants and (e) institutional policies and practices. Most relevant to this study were questions about the impacts of state laws on participants' physical and mental health, including what kept them up at night. Some participants also discussed health impacts in other parts of the interview. Prior to beginning the interview, participants gave verbal consent to participate; due to the sensitivity of the data, we received a waiver of documentation of informed consent. Interviews lasted 60-75 min and were conducted via videoconference by study investigators. Participants received a US\$75 digital gift card. Audio recordings were professionally transcribed and deidentified prior to analysis. All interviews

were conducted by ELS (an epidemiologist) and MB (a medical anthropologist).

Analytical methods

Transcripts were coded by a five-person coding team using Dedoose.¹⁹ We developed a structured coding dictionary based on emergent themes from our postinterview field notes, assigning codes to blocks of text corresponding to code definitions. During an initial coding period, we refined the coding dictionary, clarifying code definitions and adding additional codes as needed. Eight transcripts were coded by multiple team members to establish a shared understanding of code applications. The remaining transcripts (n=46) were each coded by one coder, with one out of every six transcripts (n=8) reviewed by a second coder. When coders were uncertain about how to code a specific chunk of text, they discussed these chunks with the entire team until consensus was reached.

copyright, We focus here on the code pertaining to health impacts. We used thematic analysis to categorise reported health impacts into broad domains. including for uses

This manuscript adheres to Standards for Reporting Qualitative Research guidelines.²⁰

RESULTS

Between March and August 2023, we recruited and interviewed 54 OB-GYNs, representing 13 of the 14 eligible states with neartotal abortion bans as of March 2023. Participants' average age was 42 (SD: 7); 81% (n=44) self-identified as female and 83% (n=45) self-identified as non-Hispanic White. 72% (n=39) were general OB-GYNs and 28% were subspecialists, either in MFM (n=7) or CFP n=8) (table 1).

Our analysis of health-related excerpts from interview transcripts revealed six major domains of personal health and wellbeing impacts: anxiety and depression, negative emotions, burn-out, health behaviours, sleep and personal relationships. Here, we describe these six domains and provide illustrative quotes for each.

Anxiety and depression

70% of participants (n=38) reported symptoms of anxiety and depression as a direct consequence of the impact of Dobbs on their work. For many, anxiety manifested as constant worry about the consequences of violating a law; one OB-GYN explained, 'I have a family. I worry [about] a bad legal outcome. I worry [about] losing my license. I worry about losing my livelihood. I worry about my stress and burden being something that I carry at home and affecting my partner. It bleeds into everything.' Those who experienced depression described feeling like everything had been dulled post-Dobbs: 'I think I come off as more depressed and down than I used to. I've always been a really bubbly, positive Pollyanna kind of personality...I'm not quite the same person I was before.' Several began to cry when discussing mental health impacts; one of these participants said, 'This whole situation has been really hard on my mental health, and I'm going to tear up while we're doing the interview. I think the level of stress and anxiety that we live at, it's not sustainable, and I don't think I'm the only one.'

Five participants described seeking psychotherapy or antidepressant medications to manage these symptoms post-Dobbs. One said, 'I began to see a counselor, and I've realized so much of the time I spend with her, it's almost all about work, and so much of it is...navigating this state law and the moral injury I'm feeling.' Others tried to push through these feelings; when asked

Table 1	Sociodemographic characteristics of N=54 OB-GYNs
practising	in states with near-total abortion bans as of March 2023

	Median (IQR), range	N (%)
Age	40 (36–46), 33–66	_
Years in practice	8 (6–16), 1–36	-
Gender		
Woman	-	44 (81.5)
Man	-	10 (18.5)
Non-binary or other gender	-	0
Race and ethnicity		
Asian	-	4 (7.4)
Hispanic or Latino	-	0
Native American or Alaska Native	-	0
Non-Hispanic White	-	45 (83.3)
Non-Hispanic Black or African American	-	3 (5.6)
None of the above	-	2 (3.7)
Sub-specialty		
General OB-GYN	-	39 (72.1)
Complex family planning	-	8 (14.9)
Maternal-fetal medicine	-	7 (13.0)
States		
Alabama	-	4 (7.4)
Arkansas	-	1 (1.8)
Georgia	-	4 (7.4)
Idaho	-	8 (14.9)
Kentucky	-	1 (1.8)
Louisiana	-	2 (3.7)
Mississippi	-	0
Missouri	-	2 (3.7)
Oklahoma	-	6 (11.1)
South Dakota	-	5 (9.2)
Tennessee	-	7 (13.0)
Texas	-	7 (13.0)
Wisconsin	-	3 (5.6)
OB-GYNs, obstetrician-gynaecologists.		

how they coped with a new level of anxiety, one replied, 'The way physicians do: just stick it out.'

Negative emotions

11 participants (20%) described negative, internalising emotions such as hopelessness, helplessness and disappointment as a result of legal changes and their impacts. One participant, who was in a leadership position, explained, 'I feel like so much pressure is on my shoulders as a [leader] in trying to figure out not only how do I help my colleagues navigate these really complex laws, but how do I ensure that we have adequate staffing? How do I convince our leaders that even though we're in a terrible financial situation, we're going have to pay for [locum tenens] providers because this care is so important?...Some of these problems just feel so huge and insurmountable...I was talking to one of the other obstetricians who was trying to encourage me to be hopeful, and I just started crying, standing in the middle of the nurse's station crying into a paper towel." One named her primary emotion as grief: '[I've gone through] all of the normal stages of grief and emotions. Sometimes I'm just negotiating, sometimes I'm pissed, sometimes I'm accepting. And I don't feel like it gets to acceptance and I stay there. It gets to acceptance for a little bit and then I get angry again.'

Protected

In addition to the emotions as described above, seven participants (13%) specifically named anger as their primary emotional response to the laws, differentiated from hopelessness, helplessness and disappointment by its high emotional arousal.² One explained, 'My number one emotion that often keeps me up is...anger. I'm just so angry. I'm angry at the ignorance, and I'm angry that it's so misogynistic...I don't like being an angry person. I'm not by nature an angry person.' Many attributed their anger to how laws targeted women's health provision; one said, 'I never expected to be limited by what I could discuss with patients based on politicians. And I just think it's so arrogant for them to insert themselves into my exam room because of them not really understanding what women go through and the kinds of horrible, terrible things that can happen. It just makes me so angry. No other field goes through this. No other field has criminal charges as a threat [for] taking care of patients.'

Burn-out

20 participants (37%) spoke about the impact of legal changes on their level of burn-out in general, or emotional exhaustion, a key component of burn-out,²² in particular. They described being 'psychologically drained' from working in this policy environment and the laws impacting them at a 'granular burn-out level'.

Many attributed their burn-out to the levels of legal oversight and questioning that they were experiencing for what had previously been mundane clinical decisions: 'I find myself, more and more and more, not worrying about the care that I have given, but worrying about the perception of the care that I have given. There's just a lot of scrutiny and criticism and it is mentally exhausting'. Another participant, whom we interviewed during the period when the future legality of mifepristone for medication abortion was in question,²³ explained that her emotional exhaustion was due to 'the constant daily yo-yo-ing of having to adapt to this new law or this new legal climate or the next thing coming down the pipe...And then the moment you get comfortable, which isn't even close to what anybody is, it changes again'.

Some noted that their burn-out felt particularly severe because the Dobbs decision came on the heels of the COVID-19 pandemic, when many had already worked to exhaustion. Others described how the laws had precipitated burn-out even among OB-GYNs who had been feeling professionally fulfilled postpandemic, for example, 'There are not a lot of times I've felt particularly burnt out. But now, I think there are a lot of us who are struggling more with burnout and just not being able to take care of patients [the way] we want to take care of them....When I go into the office, when I actually see patients, when I'm in an exam room, and I'm talking to people, that's not getting me down. I'm able to focus on the patient at hand. So I don't think I'm burned out in that sense. But when you start to question all the people that you live in a state with, it's almost [worse] outside of the office than it is in the office.'

Health behaviours

Six participants (11%) described how the laws had impacted their health-related behaviours, either through their coping practices (eg, increased alcohol consumption) or loss of interest in health-promoting activities. A few described how their post-Dobbs coping response led to weight gain: 'I definitely put on 15 pounds after Dobbs. I stopped exercising. I definitely drank more. My ritual became, at the end of the day... I would pour myself a glass of bourbon.'

Although some described how exercise was helping them manage their stress, more described their loss of motivation to engage in their typical health-related practices; for example, 'I used to be really vigilant about making sure I exercised a certain amount of time...[now there's] been a lot of just junk, crappy food...that I never thought I would do in my adult life. So, physically, it's taken a toll, just knowing you're not taking the best care of yourself.' Another described how legal stress took the joy out of exercise, which had previously been a source of personal fulfilment for her: 'I was always a pretty avid runner. And I [recently ran a marathon], but it was kind of sad. I just couldn't get my training underway. I just couldn't pull myself together enough. And I think it was because I had so many other distractions going on'. One noted the inadequacy of personal health behaviours to manage the level of stress she was experiencing: 'I try to get my exercise and my meditation, and I try to eat healthy. I try to come home and not have a drink. I try to do all the self-care things, but there's only so much self-care you can do and it doesn't change the fundamental situation'.

Sleep

To understand the global factors contributing to rumination or stress among OB-GYNs in the post-Dobbs era, our interview guide contained the question: 'What keeps you up at night?' In response, several participants expressed worries about future access to birth control or transgender care in their state, and 11 participants (20%) described how stress associated with legal changes directly led to difficulties falling or staying asleep. OB-GYNs described ruminating at night about whether the care that they had provided to a specific patient could have future legal consequences for them; one described her difficulty falling asleep due to worry that she would be awoken by someone arresting her, in front of her young children, for violating the law. Others laid awake thinking about adverse patient outcomes that had occurred because of the bans, despite these participants describing themselves as being well practised in compartmentalising their work and personal lives pre-Dobbs. Describing a patient who needed a hysterectomy after her intrauterine device failed and she had a life-threatening pregnancy complication, one participant said, 'I...had difficulty sleeping for the next several weeks because I was so upset for her that she had done everything right and when her contraception had failed her, we also then failed her and she had a horrible outcome.'

Personal relationships

Participants' work-related stress often spilled over into their personal lives, impacting their relationships. 15 participants (28%) described how the laws made them more irritable at home; one said, 'I can contain myself, maintain myself, at work, and then when I get home, it all just falls apart. Because...it's where I can let my guard down.' Others expressed sadness about how the laws impacted their relationships with their families: 'Even when I'm home with my husband and children, I'm not connecting with them anymore in the way that I used to because this worry is so dominant in my mind.' Some described the difficulty of being unable to seek support from friends because of how conservative their states were; one explained, 'I don't have the popular opinion in [STATE] in regards to abortion...I can't bring that up just to anyone'.

DISCUSSION

In this qualitative study of 54 OB-GYNs, we observed a range of ways that practising under state-level abortion bans impacted

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comparison group of OB-GYNs from abortion-protective states to isolate the impacts of Dobbs.

Findings from this study highlight the range of ways that state abortion bans may serve as work-related health hazards for OB-GYNs. In addition to occupational health of OB-GYNs being important in its own right, these physicians' health and well-being are integral to their ability to provide pregnancy care and other reproductive health services. Protecting their health and well-being is, therefore, a public health imperative, given the centrality of maternal health and pregnancy outcomes to overall population health.³⁷

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Contributors ELS obtained funding, conceptualised the study, recruited and interviewed participants, coded and analysed interview transcripts and drafted the manuscript. SMM provided research assistance throughout, coded and analysed interview transcripts and edited the manuscript. KSA obtained funding, conceptualised the study and edited the manuscript. MB obtained funding, conceptualised the study, recruited and interviewed participants, coded and analysed interview transcripts and edited the manuscript. LSA obtained funding, accepts full responsibility for the finished work.

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Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and the study received full board approval from the Boston College Institutional Review Board and was additionally granted an NIH Certificate of Confidentiality. Boston College Institutional Review Board protocol: #23.116.01. Participants gave informed consent to participate in the study before taking part.

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REFERENCES

- Center for Reproductive Rights. After roe fell: abortion laws by state. 2022. Available: https://reproductiverights.org/after-roe-fell-abortion-laws-by-state/ [Accessed 23 Jan 2023].
- 2 Guttmacher Institute. US abortion policies and access after Roe. 2024. Available: https://states.guttmacher.org/policies/
- 3 Grossman D, Joffe C, Kaller S, et al. Care post-roe: documenting cases of poorquality care since the dobbs decision. San Francisco, CA: University of California; 2023. Available: www.ansirh.org/sites/default/files/2023-05/Care%20Post-Roe% 20Preliminary%20Findings.pdf
- 4 Brindis CD, Laitner MH, Clayton EW, et al. Societal implications of the Dobbs v Jackson Women's Health Organization decision. Lancet 2024;403:2751–4.
- 5 Uddin SG, Simon EA, Myrick K. Routine prenatal care visits by provider speciality in the United States, 2009-2010. Hyattsville, MD: National Center for Health Statistics; 2014. Available: https://www.cdc.gov/nchs/data/databriefs/db145.pdf
- 6 Brindis CD, Laitner MH, Clayton EW, et al. Health-care workforce implications of the Dobbs v Jackson Women's Health Organization decision. Lancet 2024;403:2747–50.
- 7 Watson K. Dark-Alley Ethics How to Interpret Medical Exceptions to Bans on Abortion Provision. *N Engl J Med* 2023;388:1240–5.
- 8 Shachar C, Baruch S, King LP. Whose Responsibility Is It to Define Exceptions in Abortion Bans? *JAMA* 2024;331:559–60.
- 9 Chen DW. A new goal for abortion bills: punish or protect doctors [The New York Times]. 2023. Available: https://www.nytimes.com/2023/02/16/us/abortion-billsdoctors.html [Accessed 25 May 2024].
- 10 Arey W, Lerma K, Beasley A, et al. A Preview of the Dangerous Future of Abortion Bans - Texas Senate Bill 8. N Engl J Med 2022;387:388–90.

- 11 Sabbath EL, McKetchnie SM, Arora KS, et al. US Obstetrician-Gynecologists' Perceived Impacts of Post-Dobbs v Jackson State Abortion Bans. JAMA Netw Open 2024;7:e2352109.
- 12 Czarnecki D, Bessett D, Gyuras HJ, *et al.* State of Confusion: Ohio's Restrictive Abortion Landscape and the Production of Uncertainty in Reproductive Health Care. *J Health Soc Behav* 2023;64:470–85.
- 13 Schultz A, Smith C, Johnson M, et al. Impact of post-Dobbs abortion restrictions on maternal-fetal medicine physicians in the Southeast: a qualitative study. Am J Obstet Gynecol MFM 2024;6:101387.
- 14 Kheyfets A, Dhaurali S, Feyock P, et al. The impact of hostile abortion legislation on the United States maternal mortality crisis: a call for increased abortion education. Front Public Health 2023;11:1291668.
- 15 Andrist E. Executive, Legislative, Judiciary, & Clinic: How the Fall of Roe Will Entrench Clinicians as Agents of the State and Create Ethical Conflicts throughout Medical Practice. Am J Bioeth 2022;22:36–8.
- 16 Strasser J, Schenk E, Das K, et al. Workforce Providing Abortion Care and Management of Pregnancy Loss in the US. JAMA Intern Med 2022;182:558–9.
- 17 Heisler M, Mitchell N, Arey W, *et al.* US abortion bans should not pre-empt the duty to provide life-saving abortion care to pregnant patients in medical emergencies. *Lancet* 2024;403:1318–21.
- 18 McCarthy AM, Boos EW, Anani UE, et al. Ethical Conflicts for Clinicians under Tennessee Abortion Law. N Engl J Med 2023;388:1735–7.
- 19 Dedoose version 9.0.107, web application for managing, analyzing, and presenting qualitative and mixed methods research data [SocioCultural Research Consultants, LLC]. 2021. Available: https://www.dedoose.com/
- 20 O'Brien BC, Harris IB, Beckman TJ, et al. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med 2014;89:1245–51.
- 21 Barrett LF, Russell JA. The Structure of Current Affect: Controversies and Emerging Consensus. *Curr Dir Psychol Sci* 1999;8:10–4.
- 22 Maslach C, Jackson SE, Leiter MP. Maslach burnout inventory. 1986.
- 23 Sobel L, Salganicoff A, Published MF. Legal challenges to the FDA approval of medication abortion pills. 2023. Available: https://www.kff.org/womens-healthpolicy/issue-brief/legal-challenges-to-the-fda-approval-of-medication-abortion-pills/ [accessed 14 May 2024]
- 24 Desai A, Holliday R, Wallis M, et al. Policy Changes as a Context for Moral Injury Development in the Wake of Dobbs v Jackson Women's Health Organization. Obstet Gynecol 2023;141:15–21.
- 25 Reingold RB, Gostin LO, Goodwin MB. Legal Risks and Ethical Dilemmas for Clinicians in the Aftermath of Dobbs. JAMA 2022;328:1695–6.
- 26 Mata DA, Ramos MA, Bansal N, et al. Prevalence of Depression and Depressive Symptoms Among Resident Physicians: A Systematic Review and Meta-analysis. JAMA 2015;314:2373–83.
- 27 Rotenstein LS, Ramos MA, Torre M, et al. Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students. JAMA 2016;316:2214.
- 28 National Academies of Medicine. National plan for health workforce well-being. Washington, D.C: The National Academies Press; 2022. Available: https://doi.org/10. 17226/26744
- 29 Cubitt LJ, Im YR, Scott CJ, et al. Beyond PPE: a mixed qualitative-quantitative study capturing the wider issues affecting doctors' well-being during the COVID-19 pandemic. BMJ Open 2021;11:e050223.
- 30 Riggan KA, Reckhow J, Allyse MA, et al. Impact of the COVID-19 Pandemic on Obstetricians/Gynecologists. *Mayo Clin Proc Innov Qual Outcomes* 2021;5:1128–37.
- 31 Fan M, Sun D, Zhou T, et al. Sleep patterns, genetic susceptibility, and incident cardiovascular disease: a prospective study of 385 292 UK biobank participants. Eur Heart J 2020;41:1182–9.
- 32 Kubzansky LD, Kawachi I. Going to the heart of the matter: do negative emotions cause coronary heart disease? J Psychosom Res 2000;48:323–37.
- 33 Biddinger KJ, Emdin CA, Haas ME, et al. Association of Habitual Alcohol Intake With Risk of Cardiovascular Disease. JAMA Netw Open 2022;5:e223849.
- 34 Bergman ME, Gaskins VA, Allen T, et al. The Dobbs Decision and the Future of Occupational Health in the US. Occup Health Sci 2023;7:1–37.
- 35 Li CY, Sung FC. A review of the healthy worker effect in occupational epidemiology. Occup Med (Lond) 1999;49:225–9.
- 36 AAMC. 2023 U.S. physician workforce data dashboard. 2023. Available: https://www. aamc.org/data-reports/data/2023-us-physician-workforce-data-dashboard [Accessed 27 Nov 2023].
- 37 US Department of Health and Human Services. Healthy people 2030. 2021. Available: https://health.gov/healthypeople

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