Conceptual models for understanding physician burnout, professional fulfillment, and well-being

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Physician burnout is a highly complex phenomenon whose origins are multifactorial. As the medical profession works to better understand and reduce physician burnout, conceptual models can offer a framework to guide research and practice in the field of physician well-being. Conceptual models represent complex systems in a simplified fashion that facilitates understanding of and communication about those systems. This paper reviews seven conceptual models of physician well-being and discuss their strengths and limitations.

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Background

Physician burnout is common[1–5] and has been linked to negative outcomes for both patients and physicians. These outcomes include increased medical errors and self-reported suboptimal patient care[6–9]; decreased patient satisfaction[10–12]; reduced physician productivity and attrition from the practice of medicine.[13,14] Most alarmingly, physicians die by suicide at twice the rate of the general population and at higher rates than other professionals.[15,16] In response to these observations, health care stakeholders across the continuum of physician training and practice—including physician professional associations, medical training accreditation bodies, and health care organizations — are increasingly focused on physician well-being as a strategic priority and a moral imperative with implications not only for physicians, but also for the patients they serve.

Several conceptual models have been developed to define the factors that contribute to physician well-being and to guide interventions aimed at reducing burnout and promoting well-being. In evaluating and comparing these models, it is worth considering the process and goals involved in deriving a conceptual model.

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In conceiving of a conceptual model, authors must balance the desire to be comprehensive and the need for simplicity. It would not be helpful for the model to contain as much information and detail as the system it seeks to describe. It is also worth considering that, while conceptual models are evidence-based, they are also an act of interpretation on the part of their authors.[18] Decisions are made in the process of developing a conceptual model about what to include or exclude and how to frame relationships among multiple system elements. For this reason, it is possible for multiple conceptual models to exist that describe the same phenomenon. This is the case with physician well-

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being. The benefit of having more than one conceptual model is that each model can contribute to a larger understanding of the issue at hand and may speak to different audiences and settings. This review will introduce seven conceptual models of physician well-being, present their strengths and limitations, and describe their applications.

Guiding principles

In evaluating conceptual models of physician well-being, the following principles are important to consider:

Focus on well-being

Physician burnout has been the focus of extensive research and attention, and its associations with harms to patients, physicians, and health care institutions have driven investment in interventions to reduce burnout. However, the absence of burnout does not constitute a sufficient end goal.[19]

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Multifactorial drivers of well-being

Physicians exist in a complex healthcare system that is subject to complex economic and social forces. Models that seek to describe the factors related to physician well-being acknowledge the multifactorial nature of the issue and avoid favoring one factor over others.

Effective conceptual models acknowledge that physician well-being is a shared responsibility between individual physicians and the organizations that increasingly control their working conditions.

Shared responsibility for well-being

Despite the fact that the burnout syndrome was defined in the 1970s,[20] there was little public awareness of the issue of physician burnout for several decades thereafter. Both within the medical profession and in society at large, well-being was viewed as a personal issue and not a concern of employers or organizations. The symptoms of burnout—including emotional exhaustion and depersonalization—had been considered, at best, a personal challenge to conquer or, at worst, a failing or weakness on the part of the individual. As more data have emerged regarding the prevalence and causes of physician burnout, there is increasing awareness of the responsibility that health care organizations bear for physician well-being. Indeed, West and colleagues found in their systematic review that organizational interventions to improve physician wellbeing were as effective as interventions targeting individual factors.[21] Health care organizations, such as physician employers, medical training programs, insurance companies, regulatory agencies, and accreditation bodies influence physician well-being through policies that impact documentation burden, clinical demands and efficiency, scheduling, work-life integration, and the quality of doctor-patient relationships.

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Conceptual models

The seven models reviewed below are presented in the order of their publication.

The coping reserve

Dunn and colleagues developed the *coping reserve* model from their qualitative work with medical students (see Fig. 1).[22] In this model, the coping reserve is represented by a tank that can be filled or drained. The tank is filled by replenishing factors: mentorship, psychosocial support, health activities, and intellectual stimulation. The tank is drained by depleting factors: stress, internal conflict, and time and energy demands. Individual personality and temperament factors influence how full the tank is at baseline. The student's resilience is contingent on having enough in his or her coping reserve to withstand depleting factors without emptying the reserve.

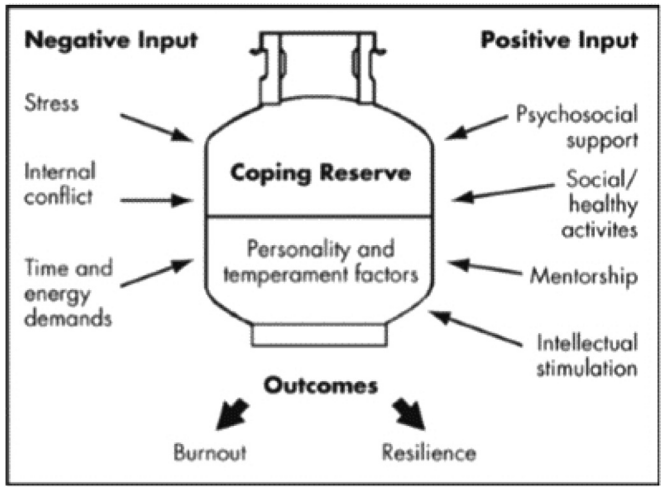

Fig. 1. The coping reserve model.
Reprinted by permission from Springer Nature from Dunn LB, Iglewicz A, Moutier C. A conceptual model of medical student well-being: promoting resilience and preventing burnout. Acad Psychiatry. 2008. Jan-Feb;32(1):44–53.

The model's strength lies in its dynamic view of resilience as a process rather than a static quality. In this model, resilience is achieved by ensuring that replenishing factors equal or exceed depleting factors. The replenishing and depleting factors can occur asynchronously; the coping reserve can be replenished in times when the demands are low in preparation for times when the demands are high. While this model is especially applicable to trainees, whose schedules have more variability, it offers practicing physicians a way to conceptualize how self-care contributes to performance. While not geared toward institutions, this model can inform system-level efforts to increase replenishing factors (e.g. peer support, mentorship) and mitigate depleting factors (e.g. excessive time demands, inadequate resources).

PERMA model

Martin Seligman, founder of the field of positive psychology, developed the well-being theory, which posits that well-being is comprised of five elements known by the acronym PERMA: positive emotions, engagement, relationships, meaning, and achievement.[23] *Positive emotions* are pleasant affective states like happiness and satisfaction. *Engagement* describes the degree of absorption in one's work. *Relationships* include all the social connections that enable a person to experience a sense of belonging and mutual support. *Meaning* is the sense of connection to a higher purpose. *Accomplishment* refers to pursuing and achieving one's goals. In Seligman's theory, each of these elements has both subjective and objective aspects and can be measured independently of one another.[24] A sixth element – *health* – has been proposed since Seligman developed his model, and encompasses physical activity, nutrition, and sleep. This updated model is known as PERMA-H.[25]

Slavin and colleagues applied the PERMA model to the medical setting by suggesting interventions that health care organizations can implement to promote well-being for trainees and physicians in each of the PERMA domains.[26] For example, in the domain of engagement, institutions can reduce non-value added tasks and streamline work processes. In the domain of relationships, institutions can create opportunities for meaningful interactions among colleagues. Slavin invokes the PERMA model as a tool that can be used both by individuals to guide them in building their resilience and for institutions to guide culture change. This model offers an approach for institutional efforts to be oriented around their impact on individual physicians.

Shanafelt's drivers of burnout and engagement

Shanafelt and colleagues developed a model that represents physician burnout and engagement as binary states on opposing ends of a continuum (see Fig. 2).[27] While acknowledging that many factors contribute to burnout and engagement, the model places seven core drivers between these binary states: physician workload, efficiency, flexibility/control over work, work-life integration, alignment of individual and organizational values, social

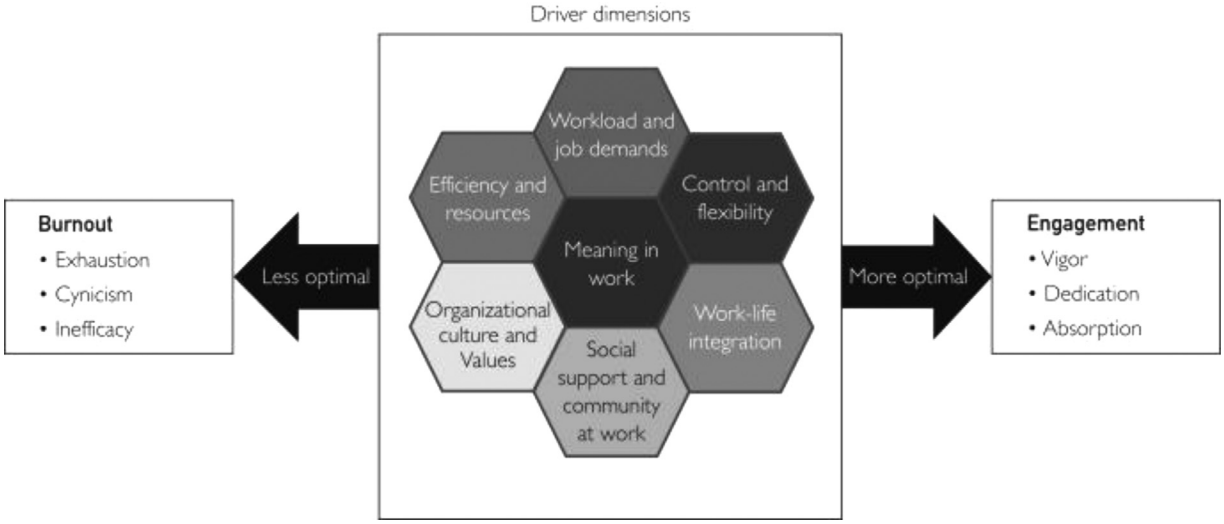

Fig. 2. Shanafelt model: key drivers of burnout and engagement in physicians.
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support/community and work, and degree of meaning derived from work. For each driver, more optimal conditions lead to engagement while less optimal conditions lead to burnout. For each driver, the authors offer examples of contributing factors at four different levels: individual, local unit, organizational, and national (see Fig. 3).

The Shanafelt model is a simple yet comprehensive model that illustrates the intersecting relationships of physician well-being with the health of the individual and the organization. Its stratified approach to drivers of burnout and engagement emphasizes that while a physician's role in their personal wellbeing is necessary, it is insufficient without support from stakeholders at the organizational and national level. Individual physicians and organizational leaders who are working to improve physician well-being can use this model to identify which changes are within their sphere of influence and how national trends in health care may play a role in the problems they see at a local level.

Three part model

In the last decade Dyrbye and colleagues proposed a series of conceptual frameworks for understanding the pathogenesis of burnout in health care professionals that continues to inform investigators in the field as well as those developing and implementing interventions designed to prevent and/or mitigate burnout.[21,28,29] The Three-Part Model of Physician Burnout is a synthesis of these models and includes three key domains: personal, local, and systems.[30] Like the Shanafelt model, this model aligns with the change management concept of spheres of influence,[31] helping individuals address aspects of wellbeing that are in their control while identifying factors that contribute to individual well-being but are beyond the power of the individual to change. Many health care professionals strongly believe that personal responsibility alone is inadequate to explain feelings of burnout and the development of resilience, but data are compelling that individuals play a role in defining their own emotional and mental well-being.[23,32] The Three Part Model acknowledges the power of personal practices and attitudes in shaping personal resilience and affirms the role that external forces play in impacting health care professional well-being.[28] Of course, some of these forces are beyond the ability of individuals or even individual institutions to manage. However, this model can encourage individuals and institutions to work together to address national systemic factors as well as change that can happen at the local level. The simplicity and clarity of its organizing principles are enduring strengths of the Three Part Model.

Stanford WellMD model of professional fulfillment

The Stanford WellMD center developed a model that divides the drivers of physician professional fulfillment into three domains – *culture of wellness,*

Drivers of burnout and engagement in physicians	 Individual factors	 Work unit factors	 Organization factors	 National factors
Workload and job demands	• Specialty • Practice location • Decision to increase work to increase income	• Productivity expectations • Team structure • Efficiency • Use of allied health professionals	• Productivity targets • Method of compensation - Salary - Productivity based • Payer mix	• Structure reimbursement - Medicare/Medicaid - Bundled payments - Documentation requirements
Efficiency and resources	• Experience • Ability to prioritize • Personal efficiency • Organizational skills • Willingness to delegate • Ability to say "no"	• Availability of support staff and their experience • Patient check-in efficiency/process • Use of scribes • Team huddles • Use of allied health professionals	• Integration of care • Use of patient portal • Institutional efficiency: - EHR - Appointment system - Ordering systems • How regulations interpreted and applied	• Integration of care • Requirements for: - Electronic prescribing - Medication reconciliation - Meaningful use of EHR • Certification agency facility regulations (JCAHO) • Precertifications for tests/treatments
Meaning in work	• Self-awareness of most personally meaningful aspect of work • Ability to shape career to focus on interests • Doctor–patient relationships • Personal recognition of positive events at work	• Match of work to talents and interests of individuals • Opportunities for involvement - Education - Research - Leadership	• Organizational culture • Practice environment • Opportunities for professional development	• Evolving supervisory role of physicians (potentially less direct patient contact) • Reduced funding - Research - Education • Regulations that increase clerical work
Culture and values	• Personal values • Professional values • Level of altruism • Moral compass/ethics • Commitment to organization	• Behavior of work unit leader • Work unit norms and expectations • Equity/fairness	• Organization's mission - Service/quality vs profit • Organization's values • Behavior of senior leaders • Communication/ messaging • Organizational norms and expectations • Just culture	• System of coverage for uninsured • Structure reimbursement - What is rewarded • Regulations
Control and flexibility	• Personality • Assertiveness • Intentionality	• Degree of flexibility: - Control of physician calendars - Clinic start/end times - Vacation scheduling - Call schedule	• Scheduling system • Policies • Affiliations that restrict referrals • Rigid application practice guidelines	• Precertifications for tests/ treatments • Insurance networks that restrict referrals • Practice guidelines
Social support and community at work	• Personality traits • Length of service • Relationship-building skills	• Collegiality in practice environment • Physical configuration of work unit space • Social gatherings to promote community • Team structure	• Collegiality across the organization • Physician lounge • Strategies to build community • Social gatherings	• Support and community created by Medical/specialty societies
Work-life integration	• Priorities and values • Personal characteristics - Spouse/partner - Children/dependents - Health issues	• Call schedule • Structure night/weekend coverage • Cross-coverage for time away • Expectations/role models	• Vacation policies • Sick/medical leave • Policies - Part-time work - Flexible scheduling • Expectations/role models	• Requirements for: - Maintenance certification - Licensing • Regulations that increase clerical work

Fig. 3. Shanafelt model: drivers of burnout and engagement with examples of individual, work unit, organization, and national factors that influence each driver.

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Fig. 4. Stanford WellMD model of professional fulfillment.

efficiency of practice, and *personal resilience* (see Fig. 4).[33] Each domain occupies 1/3 of the circle, indicating that they are equally important in their effect on professional fulfillment. Two of the domains – *culture of wellness* and *efficiency of practice* – are represented in one color to signify that they are the responsibility of the organization while the third domain – *personal resilience* – is represented in another color to signify that it is the responsibility of the individual. This model attributes the majority – two-thirds – of the responsibility for physician professional fulfillment to the organization.

Culture of wellness refers to the policies, practices, and values that determine how conducive an organization's culture is to the professional fulfillment of physicians. This domain includes factors such as mechanisms for recognition and appreciation, quality of leadership and mentoring, policies regarding leave and flexible scheduling, and approaches to supporting diversity and ensuring equity. The second domain, *efficiency of practice*, refers to how well systems function in the clinical environment to facilitate efficient, high-quality care. Factors within this domain include the electronic health record, staffing models, and the extent to which team members are able to practice at the top of their license. The *personal resilience* domain refers to the attitudes and practices that contribute to individual resilience, and includes factors such as regular exercise, sleep hygiene, healthy nutrition, mind-body practices such a mindfulness, and cognitive-behavioral techniques like cognitive reframing.

The strength of this model lies in its simplicity, which makes it easy to explain and remember, and its broad applicability. It highlights the shared responsibility between individuals and organizations. By describing factors related to physician professional fulfillment in the broadest possible terms, the model supports easy customization and utilization by individuals and institutions for a variety of purposes. It can be used to inventory existing programs at an institution, to organize themes that emerge in needs assessment, and to plan interventions.

Rosenberg model

Rosenberg proposed a model of resilience that rejects more traditional resilience theories that typically, focus on resilience as an intrinsic characteristic, an adaptive process, or an outcome.[34] Instead, Rosenberg posits that resilience should be considered a "process of harnessing the resources we need to sustain well-being."[35] These resilience resources overlap and integrate the theories of resilience as trait, processes, or outcome, and are conceptualized as three resource domains: external, internal, and existential. Rosenberg believes that professional resilience is fostered most effectively by addressing the barriers to the attainment of resilience resources.

External resources are those that provide outside social support, including professional peer support and support outside of medicine. A primary barrier to acquiring and maintaining these external resources is time. Both in medical training and afterwards, especially during their early careers, physicians commit significant time to work-related activities; this can prevent the formation of meaningful external social relationships. Personality characteristics common in physicians, like perfectionism and compulsiveness, may also create barriers to social support. *Internal resources* include personal traits (such as optimism), adaptive processes (such as mindfulness), and learned skills (such as stress management). These internal resources are different for each person, and barriers to accessing these may be different as well. Rosenberg cites Sandberg's assertion that personalization, pervasiveness, and permanence, or the "3 P's," are common barriers to accessing internal resilience resources.[36] *Existential resources* are those practices that connect a person to deeper truths, such as active meaning-making through reflection, journaling, mindfulness practice, or finding gratitude. Competing demands on

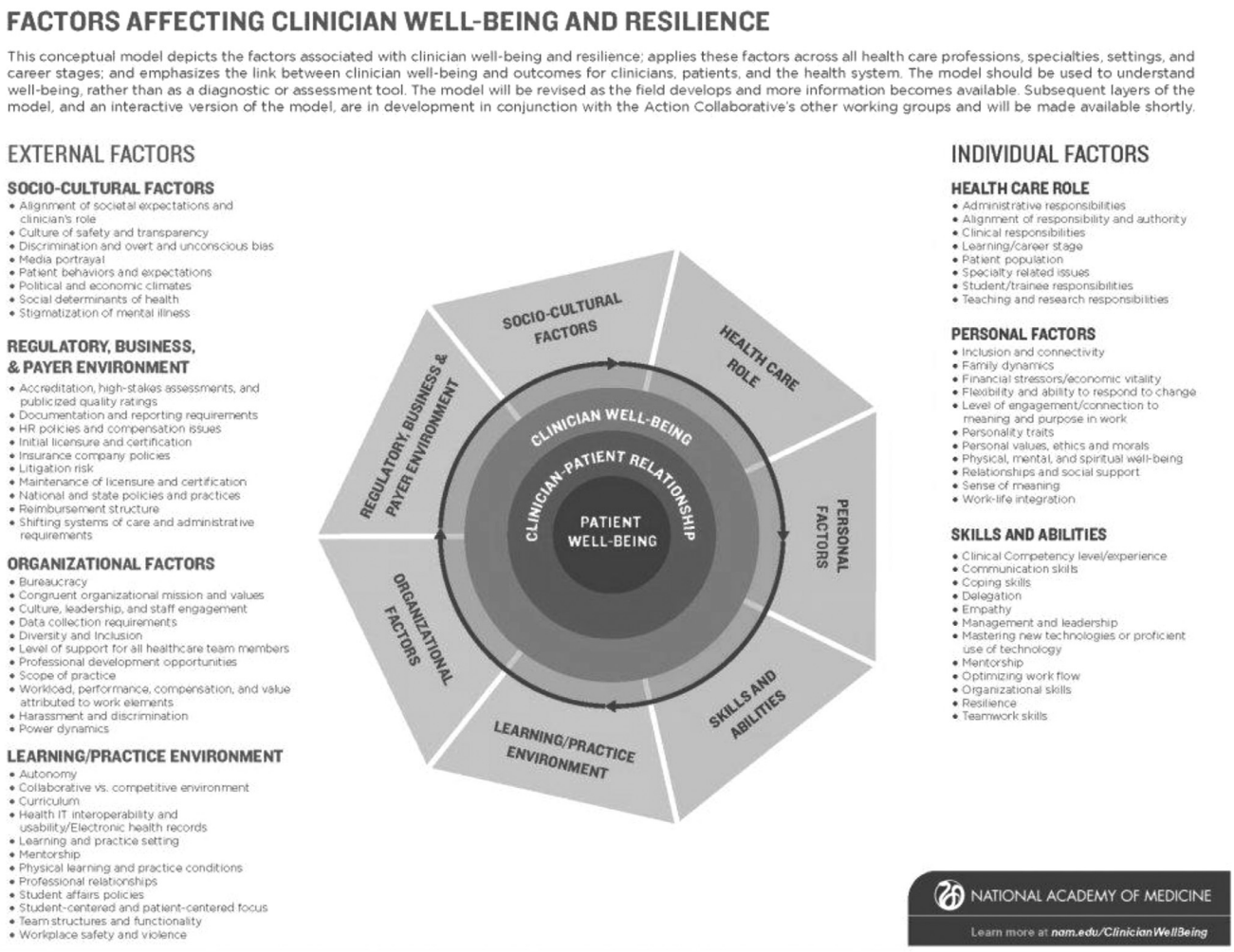

Fig. 5. National Academy of Medicine Model of Factors Affecting Clinician Well-being and Resilience.
a journey to construct an all-encompassing conceptual model of factors affecting clinician well-being and resilience. Brigham, T., C. Barden, A. L. Dopp, A. Hengerer, J. Kaplan, B. Malone, C. Martin, M. McHugh, and L. M. Nora. 2018. NAM Perspectives. Discussion Paper, National Academy of Medicine, Washington, DC. doi: 10.31478/201801b. Reprinted with permission from the National Academy of Sciences, courtesy of The National Academies Press, Washington, DC.

time and energy can be a significant barrier for physicians in accessing existential resources.

The strengths of this model are its integration of one-dimensional resilience theories into a more cohesive process that can be developed over time and its explicit emphasis on the active pursuit of purpose and meaning. This fosters a personalized focus to the attainment of resources, putting the individual in charge. This can be empowering and enlightening. It encourages personal ownership of resilience and self-fulfillment. It is worth noting that this model does not address organizational factors, though organizations and training program can use this model to inform education and professional development about individual well-being.

National Academy of Medicine Model of Factors Affecting Clinician Well-Being and Resilience

The National Academy of Medicine (NAM) launched the Action Collaborative on Clinician Well-Being and Resilience in 2017. This is a network of more than 150 organizations (to date) committed to reversing trends in clinician burnout.[32] The Action Collaborative developed an all-encompassing conceptual model that reflects the domains affecting clinician well-being (see Fig. 5).[37] The Action Collaborative describes their model: "This conceptual model depicts the factors associated with clinician well-being and resilience; applies these factors across all health care professions, specialties, settings, and career

TABLE 1. Strengths, limitations, and applications of physician well-being conceptual models.

Model	Strengths	Limitations	Application
The coping reserve[22]	- Can be used for building individual resilience or for institutional program building - Dynamic representation of resilience empowers individuals and organizations to increase resilience through intentional effort	- Replenishing and depleting factors are geared toward medical students and are not inclusive of all factors affecting practicing physicians.	- Particularly applicable to medical education settings and as a tool for individuals to plan for ways to improve their personal resilience
PERMA model[26]	- Can be used for building individual resilience or for institutional program building - Connects physician well-being to the established field of positive psychology	- Individual-focused and affective descriptors may not translate well to executives and leaders - Is not specific to medicine	- Can be used to organize both individual and institutional efforts to improve well-being
Shanafelt's drivers of burnout and engagement[27]	- Simple but comprehensive - Effective visual representation of the opposing outcomes of physician burnout and engagement - Stratified approach to drivers of burnout and engagement emphasizes the role of multiple stakeholders	- Broad scope of stratified approach may dilute individual and organizational factors	- Geared toward executives - Calls attention to the national context that influences individuals and organizations - Frames investment in physician wellbeing as an organizational mandate necessary to maintain system integrity and patient satisfaction
Three-part model[30]	- Straightforward - Highlights important role of local ("micro-environment") and system factors	- High level of organization; can leave individuals unaware of complexity of factors at play in each domain - Does not define relative importance of the three domains	- Easy to use in presentations devoted to defining key drivers of burnout and methods to promote wellness - Validates physicians' concerns about impact of system factors on physician distress
Stanford model[33]	- Simple and easy to remember - Broad and generalizable - Effective visual representation of the organization's majority responsibility for physician wellbeing	- Does not describe specific drivers - Does not acknowledge the relationship between physician and patient wellbeing	- Easy to explain in the context of brief talks or executive summaries - Helpful framework for organizing an institution's response to the issue of physician wellbeing
Rosenberg model[34]	- Resilience defined as a process that can be developed over time - Emphasis on self-efficacy and personal empowerment in the development of resilience	- Does not address the potential contribution of organizations and groups in fostering resilience - Responsibility is on the individual to find/cultivate all resilience resources (external, internal, existential)	- Can be used by individuals to understand and develop their own personal resilience - Training programs can use this model to design curricula and processes to support trainee resilience
NAM model[37]	- Comprehensive model - Inclusive of all clinicians, not just physicians - Lists many examples of each factor - Patient care is in the center	- No specific interventions are included - Model centers around clinician-patient relationship (not all well-being factors are related to this relationship)	- Helpful to use as a comprehensive overview of organizational and individual factors influencing clinician well-being - Specific examples of factors can be referenced

stages; and emphasizes the link between clinician well-being and outcomes for clinicians, patients, and the health system. The model should be used to understand well-being, rather than as a diagnostic or assessment tool."[37]

The NAM conceptual model puts Patient Well-Being in the center, with Clinician-Patient Relationship and Clinician Well-Being in concentric circles around Patient Well-Being. Factors contributing to clinician well-being are listed in two categories: External Factors and Individual Factors. The categories of external factors include Society & Culture, Rules & Regulations, Organizational Factors, Learning/Practice Environment, and Health Care Responsibilities. The Individual Factors categories are Personal

Factors and Skills & Abilities. The model describes several examples in each category.

The NAM model is unique in that it encompasses all clinicians (not just physicians). Similar to other models, the NAM Conceptual Model is divided into "system factors" and "individual factors". It includes specific examples of each factor and emphasizes the importance of addressing the many different contributors to clinical well-being.

Like most models and publications on the topic of well-being for health care professionals, the NAM Conceptual Model identifies factors that contribute to the problem but does not list specific evidence-based interventions. The NAM Action Collaborative's intent is to organize working groups to identify evidence-based strategies to improve clinician well-being at both the individual and system levels, and to update the Conceptual Model over time.

Conclusion

Conceptual models can be a helpful tool for understanding physician well-being, guiding the measurement of well-being and assessment of needs, and structuring programs and interventions to improve physician well-being. The conceptual models described in this paper comprise a tool box; different models may be useful in different situations, and familiarity with at least a few of the models provides the opportunity to draw on their unique strengths (see Table 1). As research continues to emerge on interventions to improve physician well-being, it will be important for conceptual models to incorporate evidence-based strategies.

Declaration of Competing Interest

None.

Financial disclosures

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