

## AAIM Perspectives

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# A Roadmap for Research on Resident Well-Being



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Although well-being lacks a universally agreed-upon definition, it is generally understood to include both the presence of positive elements (eg, engagement, happiness, quality of life, meaning and fulfillment, and physical health) and the absence of negative elements (eg, physical illness, depression, anxiety, and burnout).<sup>1</sup> In recognition of the challenges to well-being faced by residents during the physician training process,<sup>2</sup> a better understanding of how training programs can promote well-being and reduce distress is required. Research on interventions to achieve these goals is at a relatively early stage<sup>2,3</sup> and guidance for the conduct of successful intervention studies is needed. In this article, we aim to help residency programs, administrators, education leaders, regulatory bodies, and learners to stimulate these

efforts by considering existing gaps that studies should address, barriers to research in this field, principles and standards for measurement, and study design recommendations.

### GAPS IN THE LITERATURE

Despite the growing literature on interventions that address resident well-being and distress, many unanswered primary research questions persist.<sup>4</sup> A foundational need remains to clarify and define conceptual models of constructs associated with well-being, such as engagement, professional fulfillment, resilience, burnout, and depression, and how they interrelate. When considering specific elements of well-being and distress, research that considers not just prevention of and recovery from distress, but also promotion of engagement, meaning from work, and other positive aspects of well-being should be a priority.

Interventions targeting both individuals and organizations are needed.<sup>2,5</sup> As many aspects of resident well-being are rooted in the work environment, system-level approaches to promote well-being merit particular attention. Organizational and system-based interventions may be more effective,<sup>3</sup> further emphasizing the need for

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additional studies of these interventions. In addition, assessment should look beyond individual effects to include functional impacts, such as mental health resource utilization and measures of institutional and training program culture, along with objective measures of health care delivery and workforce outcomes.<sup>6</sup> Research on optimal implementation of interventions and the environments within which specific interventions or combinations of interventions are most effective is also needed.<sup>2,3</sup> For example, institutional interventions may be effective locally but generalize poorly, whereas individual-focused interventions might become part of a resident physician's skill set and be more portable across learning or practice environments.

Recommendations:

1. Clarify definitions relating to resident well-being and distress and continue to explore relationships between distress and associated constructs to inform interventions and outcomes.
2. Study both distress and well-being; well-being is not simply the absence of distress.
3. Consider both individual and system-level interventions.

## BARRIERS TO RESEARCH

A variety of barriers limit the conduct of research on resident well-being. Despite clarification from the Accreditation Council for Graduate Medical Education (ACGME) that resident well-being is within the scope of responsibility of training programs,<sup>7</sup> common tensions between service and education may attenuate the benefit of well-intended interventions. For example, the potential for work compression or increased stress from handoffs as a result of duty hour limitations may offset increases in well-being expected from reduced work hours.<sup>8</sup> Additionally, resources required to implement interventions are often perceived as scarce. This concern may be alleviated by the growing body of evidence on positive productivity and workforce outcomes from efforts to promote well-being.<sup>9</sup> At training sites, these data can be supplemented by educating stakeholders about the known consequences of resident distress on patient care and professionalism, in addition to consequences for individual residents.<sup>10</sup> Indeed, there is a compelling moral obligation of the medical profession to nurture residents within a healthy work environment.

Human subject protection issues as adjudicated by institutional review boards (IRBs) are also important

considerations for interventions affecting resident well-being. For example, informed consent and confidentiality are especially important issues given resident status as a vulnerable population of research participants. Inquiring about substance abuse and suicidal ideation, in particular, can prompt concern for IRBs. Distinguishing

between active and historical mental health concerns is crucial; studies evaluating the former may require a real-time plan to respond to disclosed information suggesting at-risk status for study participants. In addition, many survey tools are screening instruments not intended to confirm diagnoses. For example, common brief instruments for depression screening such as the PRIME-MD, PHQ-2, and PHQ-9 tools are not diagnostic measures for depression;<sup>11</sup> clarifying this distinction may inform how

aggressively investigators must respond to positive screening results. Even for historical and screening questions, however, information on available resources to promote and protect mental health and other elements of well-being should be provided to study participants.

Although evaluation of human subject protection issues is ultimately under the purview of IRBs, the Code of Federal Regulations, Title 45, Part 46.101 indicates that "research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods" may generally be considered exempt.<sup>12</sup> This exemption is important given the 2017 Common Program Requirements Section VI.C addressing well-being,<sup>7</sup> which mandates resident well-being curricula. Interventions to promote resident well-being as curricular elements may often be considered exempt because they are now required elements within established educational settings.

Participant recruitment may be limited by several additional factors. Physicians are often reluctant to pursue self-care for a variety of reasons, such as embarrassment, insufficient time, cost, loss of control, inability to find a source of care, perceived burden placed on colleagues, and awareness of the limitations of the medical system.<sup>13</sup> Residents identify concerns about confidentiality and stigma as factors making them reluctant to engage with mental health resources.<sup>14</sup> Therefore, study designs will need to take into account the specific concerns that residents may have about confidentiality as they consider enrolling in studies, being truthful in report-

## PERSPECTIVE VIEWPOINTS

- A better understanding of how training programs can promote well-being and reduce distress is required.
- Identifying gaps in the literature and overcoming barriers to research on resident well-being can stimulate new research insights in this area.
- Applying validated measurement tools and robust study designs is vital to understanding effective interventions for resident well-being.

ing symptoms and treatments, and providing feedback about interventions. ACGME requirements may help normalize discussion and assessment of well-being and distress, lessening stigma as we learn how prevalent these issues are. Nonetheless, they remain sensitive concerns, requiring anonymous tools and confidentiality.

Regulatory drivers and barriers exist as well. While the increased focus from ACGME on resident wellness may help to overcome some policy-based barriers to research, studies of interventions within the training environment must maintain compliance with ACGME requirements unless exceptions are granted, which could limit the types of interventions and controls that are investigated. To reduce these barriers, defining pathways to allow regulatory flexibility may be needed to enable programs to more rigorously evaluate the impact of interventions and speed progress. Recent examples, including the Educational Innovations Project<sup>15</sup> and Flexibility in Duty Hour Requirements for Surgical Trainees (FIRST) Trial,<sup>16</sup> illustrate the benefits of regulatory flexibility in the development and study of program-level interventions.

Recommendations:

1. Resources to study and improve resident well-being are needed.
2. Residents are a vulnerable population; careful consideration of human subject protection issues is mandatory for resident well-being research.
3. Research design must account for the traditional stigma associated with physician distress and manage it

appropriately—for instance, by gathering data anonymously or de-identifying data.

4. Regulatory bodies have a role in both ensuring that resident well-being is integrated into accreditation processes and providing regulatory flexibility for intervention studies.

### PRINCIPLES AND STANDARDS FOR MEASUREMENT

Evaluation of interventions should prioritize measures with strong validity evidence within the desired domains of well-being and distress. For example, established measures exist for burnout, depression, resilience, empathy, and engagement and they should be used where possible (Table 1).<sup>17-29</sup> Ease and method of administration, length of instrument, and cost are all important factors in instrument selection when multiple validated tools exist. To illustrate these considerations, the 22-item Maslach Burnout Inventory<sup>17</sup> is the most widely accepted burnout measure, but its use is licensed and its length may limit its application in large-scale survey studies or institutional assessments. Shorter instruments have been studied,<sup>18-20</sup> but they may have their own limitations. In particular, burnout involves more than the emotional exhaustion domain alone, so instruments restricting assessment to this domain will offer an incomplete view of burnout. Investigators and programs must carefully consider these competing issues in selecting measurement tools. A number of validated instruments, such as the

**Table 1** Selected Measures of Distress and Well-Being Applied in Residents

Name	Length (Items)	Cost	Notes
<b>Burnout</b>			
Maslach Burnout Inventory (MBI)		\$	
Full Instrument <sup>17</sup>	22		Current gold standard
Brief Instrument <sup>18,19</sup>	2		
Single item emotional exhaustion screen <sup>20</sup>	1	Free	
Copenhagen Burnout Inventory <sup>21</sup>	19	Free	
Oldenburg Burnout Inventory <sup>22</sup>	16	Free	
<b>Depression<sup>23</sup></b>			
PRIME-MD	2	Free	No questions on suicidal ideation
PHQ-2	2	Free	No questions on suicidal ideation
PHQ-9	9	Free	No questions on suicidal ideation
CES-D	20	Free	
Beck Depression Inventory	21	\$	
HANDS	10	\$	
<b>Resilience</b>			
Connor-Davidson Resilience Scale (CD-RISC) <sup>24</sup>	2, 10, or 25	\$	
Brief Resilience Scale <sup>25</sup>	6	Free	
<b>Empathy</b>			
Jefferson Scale of Empathy <sup>26</sup>	20	\$	Measures cognitive aspects of empathy
Interpersonal Reactivity Index <sup>27</sup>	7 per domain	Free	Measures emotional and cognitive domains of empathy among 4 total domains
CARE measure <sup>28</sup>	10	Free	Measures patients' perceptions of relational empathy
<b>Engagement</b>			
Utrecht Work Engagement Scale (UWES) <sup>29</sup>	9 or 17	Free	

Mini-Z<sup>20,30</sup> and Physician Well-Being Index,<sup>31</sup> consolidate several constructs into single brief inventories. The former includes emotional exhaustion, job satisfaction, and several measures of practice effectiveness and engagement. A resident-fellow version is currently being developed. The latter combines questions on burnout, depression, fatigue, and mental and physical quality of life, and has a validated resident-fellow version. Benefits of these instruments include brevity, coverage of important outcomes, and validation as well as increasingly widespread use. When greater detail on a specific outcome, such as burnout, is desired, the use of longer instruments will still generally provide more granular data.

Regardless of the measures applied, both individual and system-level outcomes should be assessed when possible. System-level outcomes may include aggregates of individual measures, patient satisfaction, physician turnover, and markers of productivity or quality. Additionally, longer-term results should be measured to evaluate sustainability of intervention effects and potential future effects on outcomes such as career choice and satisfaction.

Recommendations:

1. Use instruments with strong validity evidence whenever possible.
2. Both institutional and individual outcomes should be assessed when possible.
3. Consider long-term follow-up of interventions.

## STUDY DESIGN

Logistical and ethical difficulties exist when implementing rigorous methodological studies in resident well-being research. Although their pursuit should not be abandoned, randomized controlled trials and large cohort studies may be difficult within graduate medical education environments. Alternative study designs may be more feasible, and the goal should be to optimize their conduct. For example, assessing outcomes at multiple time points, including post intervention, can inform how long an intervention takes to exert its effect and how long effects are sustained. Given the length of medical training, evaluation of intervention effects over multiple years may be desirable. Such assessments may also mitigate measurement concerns related to uniquely stressful periods of training such as fellowship interview season or transitions to markedly greater levels of responsibility such as between the postgraduate years 1 and 2 training years. Additionally, considering how interventions are aligned to promote the professional skills, attitudes, and behaviors of highly effective physicians over years of practice is important. While proximal outcomes such as depression, burnout, or engagement prior to and after an intervention are of interest, reports of longer-term follow-up will make meaningful contributions as well. For instance, career satisfaction, engagement, percent of time engaged in clinical work, and frequency of job changes

in the future could be assessed. Regardless of design, comparative control groups are vital.

Qualitative methods can provide important depth of information about resident needs and experiences, and may offer critical insights into theory generation and conceptual models around well-being and associated constructs such as engagement and burnout. Also, multiple institutions can often be recruited to take part in a study to increase both sample size and generalizability. Developing national networks coordinating with major organizations such as ACGME, the Association of American Medical Colleges, the Alliance for Academic Internal Medicine, the National Academy of Medicine, and others offer opportunities to further these necessary partnerships.

A single intervention that is universally effective should not be expected—a diverse menu of interventions will likely be required and only a subset of residents may wish to participate in any given approach. Preferences for well-being interventions are likely to be highly individual-specific, such that when implemented beyond the studied volunteer population, interventions may be less effective and less utilized. Therefore, to increase generalizability, efforts should be made to “market” resident well-being interventions to potential participants in an effort to select more broadly representative samples. Furthermore, interventions should be integrated into existing curricular schedules to avoid being seen as an added burden.<sup>32</sup>

Finally, assessing risk of bias and other aspects of study quality is important in placing results of different studies into context. Tools are available to assist researchers in assessing and reporting the quality of their educational interventions. For example, the Medical Education Research Study Quality Instrument (MERSQI)<sup>33</sup> enables researchers to quantify the quality of the research design and analytic scheme and take steps to improve the design proactively by considering the MERSQI elements as the study is developed. Regardless of study design, describing conceptual frameworks can lend plausibility and coherence to conclusions.

Recommendations:

1. Randomized controlled trials or large cohort studies may not always be feasible; alternative study designs, such as longitudinal comparative cohort studies, can meaningfully advance knowledge.
2. Marketing and recruitment should be planned carefully to maximize generalizability.
3. Thoughtfully situating interventions in training to facilitate buy-in and participation is important.
4. Risk of bias in research studies on resident well-being should be evaluated systematically.

## CONCLUSIONS

Given the prevalence, magnitude, and consequences of resident well-being concerns, and the lack of consen-

**Table 2** Recommendations for Resident Well-Being Research

Domain	Recommendations
Gaps in the literature	<ol style="list-style-type: none"> <li>1. Clarify definitions relating to resident well-being and distress and continue to explore relationships between distress and associated constructs in order to inform interventions and outcomes.</li> <li>2. Study both distress and well-being, as well-being is not simply the absence of distress.</li> <li>3. Consider both individual and system-level interventions.</li> </ol>
Barriers to research	<ol style="list-style-type: none"> <li>1. Resources to study and improve resident well-being are needed.</li> <li>2. Residents are a vulnerable population, and careful consideration of human subject protection issues is mandatory for resident well-being research.</li> <li>3. Research design must take into account the traditional stigma associated with physician distress and manage it appropriately—for instance, by gathering data anonymously or de-identifying data.</li> <li>4. Regulatory bodies have a role in both ensuring that resident well-being is integrated into accreditation processes and providing regulatory flexibility for intervention studies.</li> </ol>
Principles and standards for measurement	<ol style="list-style-type: none"> <li>1. Use instruments with strong validity evidence whenever possible.</li> <li>2. Both institutional and individual outcomes should be assessed when possible.</li> <li>3. Consider long-term follow-up of interventions.</li> </ol>
Study design	<ol style="list-style-type: none"> <li>1. Randomized controlled trials or large cohort studies may not always be feasible, and alternative study designs such as longitudinal comparative cohort studies can meaningfully advance knowledge.</li> <li>2. Marketing and recruitment should be planned carefully to maximize generalizability.</li> <li>3. Thoughtfully situating interventions in training to facilitate buy-in and participation is important.</li> <li>4. Risk of bias in research studies on resident well-being should be evaluated systematically.</li> </ol>

sus on how best to ameliorate them, well-designed ongoing research is needed to inform best practices to optimize resident well-being. In this article, we have discussed gaps in the literature, barriers to this research, optimal selection of outcome measures, and study design considerations. Those planning interventions can utilize the recommendations made in each area (summarized in **Table 2**) to promote high-quality research with robust evaluations that will serve to build the evidence base on interventions to improve resident well-being.

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