



PRACTICAL TIPS

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Flourishing by Design: Applying Self-Determination Theory and the Job Demands-Resources Model to Systems-Level Wellness in Medical Education

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Abstract

Background

Physician burnout remains a defining challenge in medical education, driven by excessive demands and fragmented wellness initiatives. While calls for systemic reform grow louder, many efforts lack a unifying framework capable of addressing both distress and the cultivation of professional fulfillment.

Methods

This guide applies a dual-theory lens—Self-Determination Theory (SDT) and the Job Demands–Resources (JD-R) model—to propose a systems-based approach to motivation and wellness. Drawing on empirical evidence and applied experience, it presents twelve actionable strategies across three ecological domains: the built environment, policy frameworks, and interpersonal dynamics. The first six strategies target hindrance demands that frustrate psychological needs and contribute to burnout; the next six strengthen resources that satisfy those needs and foster engagement, resilience, and well-being.

Results

The strategies offer flexible, theoretically grounded entry points for reform, supporting institutions in cultivating sustainable, human-

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centered learning environments where wellness is embedded—not bolted on. Examples include prioritizing formative over high-stakes assessments, integrating justice and safety into institutional design, and balancing clinical responsibility with developmental support.

Conclusions

Integrating SDT and JD-R provides a rigorous, coherent, and scalable foundation for systems-level wellness initiatives. It reframes well-being not as the absence of burnout but as the presence of flourishing—offering a shared language, validated metrics, and a roadmap for lasting cultural and structural transformation in medical education.

Keywords

physician wellness, burnout prevention, Self-Determination Theory (SDT), Job Demands-Resources (JD-R) Theory, medical education reform, basic psychological needs

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REVISED Amendments from Version 2

In response to second-round reviewer feedback, I made final refinements focused primarily on clarity, flow, and usability rather than substantive changes to the manuscript's core argument. I tightened wording throughout to improve concision and readability, strengthened transitions and signposting to guide readers through the dual-theory logic (SDT and JD-R) and the paper's three ecological domains (built environment, policy frameworks, and interpersonal dynamics), and ensured consistent terminology and parallel phrasing across sections. I also rebalanced the twelve tips to improve symmetry across domains, aligning the sequence, emphasis, and evidentiary grounding of each recommendation, so that the set reads as a coherent, practical "toolkit" rather than a list of discrete ideas. Finally, I clarified the action orientation of each tip (what institutions can do, not only what they should value), refined caveats to reduce ambiguity, and standardized style choices (e.g., punctuation, contrast framing) to make the manuscript easier to follow, more compelling, and more readily applied across diverse training contexts.

Any further responses from the reviewers can be found at the end of the article

Introduction

Burnout among medical trainees and physicians is no longer a background concern—it has become a defining feature of modern medical training. Despite years of wellness initiatives, distress persists, driven by excessive demands and insufficient systemic support¹. Institutional responses, though well-intentioned, often remain fragmented and reactive, lacking a coherent foundation for sustained, meaningful change.

Momentum is building for something more transformative. Reports such as *Revealing the Blind Spots* and related national analyses have exposed the structural barriers that continue to undermine physician wellness, calling for a shift from surface-level fixes to deeper, systemic reform²⁻⁶. Increasingly, scholars and educators argue that progress requires frameworks capable of addressing both the negative and positive dimensions of human functioning—psychological distress and psychological growth⁷. Reducing burnout and ill-being is only half the task. Fostering vitality, purpose, and joy is the other.

Self-Determination Theory (SDT) and the Job Demands-Resources (JD-R) model together offer such a framework. Each provides a distinct yet complementary lens: SDT explains how social and organizational contexts shape human motivation and wellness, while JD-R situates these processes within the structural realities of work. Their integration illuminates how institutional design can either nourish or deplete engagement, resilience, and professional growth—clarifying not only why people burn out, but how they can thrive.

This paper applies these frameworks to propose a systems-based approach to motivation and wellness in medical education. It outlines twelve interrelated strategies for reducing hindrance demands that frustrate psychological needs and for enhancing resources that satisfy them. These recommendations are grounded in theory and evidence and further informed by my work as

a physician, educator, and SDT researcher collaborating with organizations to translate motivation science into practice. Rather than offering fixed prescriptions, they are presented as adaptable entry points for ongoing, context-sensitive reform—ones aimed at cultivating human-centered, sustainable environments for learning and care.

Self-Determination Theory (SDT)

Self-Determination Theory (SDT) is a well-established, empirically validated framework for human motivation and well-being, applied extensively across education, healthcare, and organizational contexts⁸. It identifies three basic psychological needs—autonomy (a sense of volition and agency), competence (a sense of capability and growth), and relatedness (a sense of belonging and respect)—as essential nutrients for thriving⁹. When these needs are supported, individuals experience vitality and engagement; when they are frustrated, motivation deteriorates, leading to disengagement, burnout, and attrition.

Importantly, low need satisfaction is not the same as need frustration. SDT's dual-process model distinguishes these pathways: need satisfaction predicts flourishing and resilience, while need frustration predicts strain, defensive coping, and ill-being¹⁰. Thus, well-being and burnout are not opposites, but can co-exist. A physician may find deep meaning in their work but feel depleted; another may feel competent but unseen. Recognizing this duality invites a more nuanced and developmental view of wellness—one that understands flourishing not as the absence of hardship, but as the presence of support that allows people to grow through it.

SDT also clarifies a pervasive misconception in medicine—that autonomy equates to independence. Autonomy instead refers to acting with volition and alignment with personal values. Learners can feel autonomous even in highly structured or supervised settings when they are respected, informed, and meaningfully involved. Conversely, excessive "freedom" within unsupportive or isolating climates can feel alienating. Misunderstanding this distinction has long shaped medicine's hidden curriculum, where stoicism, self-sacrifice, and solitary endurance are valorized over collaboration, mutuality, and supported growth¹¹. Correcting this cultural inheritance requires more than resilience training—it requires structural attention to how learning environments meet or thwart psychological needs.

The Job Demands-Resources (JD-R) model

The Job Demands-Resources (JD-R) model offers a complementary, system-level framework for understanding workplace stress, engagement, and performance¹². At its core, the model posits that the balance between demands and resources determines whether individuals shift toward engagement or exhaustion. When resources outweigh pressures, people experience energy, meaning, and growth; when demands chronically exceed support, motivation falters and burnout becomes predictable. JD-R reframes burnout not as individual weakness but as a systemic imbalance between effort and recovery.

Within this framework, workplace characteristics are categorized as demands (e.g., workload, emotional strain, bureaucracy)

or resources (e.g., autonomy, feedback, mentorship)¹². Crucially, not all demands are harmful. *Challenge demands*, such as complex clinical cases or steep but achievable learning curves, can promote mastery and growth when matched with adequate support. *Hindrance demands*—avoidable stressors like redundant documentation, unclear expectations, or rigid hierarchies—drain energy, impede learning, and frustrate basic psychological needs.

In medical education, these dynamics are visible in rotation design, assessment systems, and supervision structures. Entrustment processes can become demotivating when perceived as inconsistent or bureaucratic, while performance pressure, emotional labour, and fragmented feedback loops often function as hindrance demands when left unbuffered. A review by Tummers *et al.*¹³ found that job redesigns emphasizing autonomy, feedback, and team-based support significantly improved engagement and reduced strain. Applied to medical training, JD-R invites educators to ask not only what challenges learners face, but whether those challenges are energizing or depleting, and whether the system equips them to succeed.

SDT and JD-R: A dual theory systems lens

SDT and JD-R together offer a unified framework linking individual motivation to system design. SDT explains how social contexts influence engagement through the satisfaction or frustration of basic psychological needs, while JD-R situates these processes within the structural ecology of work^{8,14}. Integrating the two creates a dual-process lens that connects personal experience with organizational function, revealing how both well-being and burnout are cultivated, or constrained, by design.

Large-scale evidence supports this synthesis. In a study of nearly 2,000 educational leaders, Marsh *et al.*¹⁵ found that job demands predicted need frustration, while resources predicted need satisfaction, with autonomy frustration emerging as the strongest predictor of burnout and intent to leave. Similar findings in higher education demonstrate that JD-R-informed interventions can reduce burnout and enhance engagement by recalibrating the balance between demands and supports¹⁶. These results affirm that SDT and JD-R are not abstract theories but practical guides, clarifying both the roots of distress and the levers for sustainable motivation and flourishing.

The twelve strategies that follow draw from these frameworks and from lived experience. The first six target hindrance demands that frustrate psychological needs; the next six amplify resources that satisfy them. Each serves as a flexible entry point for reform, adaptable across settings and scales. Collectively, they form a blueprint for aligning policies, practices, and culture with what truly sustains learner and physician well-being.

While each strategy highlights a specific organizational lever, these levers are nested within broader systemic forces. The built environment—clinical work areas, call rooms, lounges, and teaching spaces—shapes motivation and wellness in subtle

but powerful ways. Layout, lighting, noise, privacy, and access to rest or daylight all affect psychological safety, fatigue, and perceived value¹⁷. Policy frameworks, like scheduling structures, reporting processes, and workload limits, determine how demands are distributed and how autonomy is enabled or constrained. Interpersonal dynamics, including trust, respect, and feedback quality, mediate the daily experience of learning.

These domains interact continuously: even the most supportive teacher may struggle to meet learner needs in a chaotic, understaffed, or poorly designed system. Recognizing these intersections allows institutions to move beyond piecemeal interventions toward integrated, design-level change, where the system itself becomes an ally in motivation and well-being.

Reducing hindrance demands: Addressing the frustration of basic psychological needs

To reduce burnout, medical institutions must first confront the systemic conditions that frustrate basic psychological needs. These conditions act as hindrance demands—structural barriers that drain energy, limit autonomy, undermine competence, and thwart relatedness. The following strategies target six common, remediable sources of need frustration.

Tip 1. Loosen curricular rigidity to restore learner autonomy

Rigid, one-size-fits-all curricula strip learners of agency, leaving little room for input into schedules, rotations, or electives¹⁸. When preferences are solicited by rarely honoured, or when final schedules arrive only days before rotations, autonomy is quietly thwarted. Compliance-focused communication amplifies the message that structure matters more than growth, reducing learners to passive recipients rather than active participants in their own development. These “small” constraints accumulate, signalling low voice and limited trust, and shifting motivation toward compliance rather than internalization.

Evidence confirms the risk of rigidity. Hansen *et al.*¹⁹ found that learner motivation shifted from controlled to autonomous when scheduling and transitions aligned with SDT principles, whereas externally imposed structures caused motivational setbacks. Likewise, Liu *et al.*²⁰ and Zhu *et al.*²¹ both showed that autonomy-supportive curricular redesigns enhanced motivation and reduced stress. When avoidable rigidity adds friction without adding learning value, it functions as a hindrance demand, consuming energy while offering little developmental return.

Programs can restore ownership through flexible scheduling, elective choice, and individualized pathways, transforming training from a conveyor belt into a journey where learners feel included, capable, and engaged. When flexibility is not feasible, autonomy can still be supported through transparent rationales and opportunities for input. Even fixed expectations can be internalized when learners understand their purpose and relevance²². In practice, autonomy support often looks like predictable timelines, clear rationales, and real opportunities to shape schedules where feasible, so structure supports development rather than merely enforcing compliance.

Tip 2. Prioritize formative over high-stakes assessment
 Cultures dominated by scores, rankings, and constant evaluation push learners to perform for approval rather than mastery, fueling impression management, impostorism, and burnout^{23,24}. In such climates, help-seeking becomes risky: disclosure feels career-limiting, and mistakes are hidden instead of explored²⁵. From a JD-R perspective, perpetual evaluative pressures act as a hindrance demand that drains energy and frustrates competence. The result is defensive learning—an orientation toward avoiding failure rather than pursuing growth. Over time, curiosity and self-directed development give way to surveillance, caution, and performance management.

Formative, developmental approaches can reverse this trajectory. Programmatic assessment—portfolios, frequent low-stakes observations, and structured reflection—encourages learners to engage openly with feedback and track their progress over time^{26,27}. These methods position learning through assessment rather than after it, fostering both autonomy and competence. Evidence consistently shows that mastery-oriented goals strengthen resilience and self-regulation, whereas performance goals heighten anxiety and disengagement²⁸.

When institutions shift from ranking to coaching, assessment becomes a catalyst for curiosity and self-directed growth. Operationally, this means increasing high-frequency, low-stakes observation and reflection, while reserving high-stakes decisions for aggregated, longitudinal evidence.

Tip 3. Flatten hierarchies and diminish competitive climates

Hierarchical and competitive environments fundamentally shape how learners relate to their work and to one another. When contexts support choice, self-regulation, and genuine interest-taking, learners adopt an autonomous orientation that fosters engagement and growth. When they instead pressure compliance or feel unpredictable and beyond influence, anxiety, helplessness, and disengagement follow. Neufeld *et al.*²⁹ found that residents perceiving autonomy reported markedly less impostorism and burnout, while Salehi *et al.*³⁰ showed that entrenched hierarchies and competition fuel mistreatment, moral distress, and silence—especially in procedural contexts. In JD-R terms, rigid hierarchy amplifies social threat and uncertainty while restricting access to relational resources, making day-to-day learning feel higher-stakes than it needs to be.

These hierarchies also perpetuate a culture of suppression, where stoicism and silence are mistaken for professionalism. In practice, this often looks like guarded help-seeking, avoidance of questions, and reluctance to name uncertainty—understandable adaptations in climates where mistakes carry social cost. True psychological safety depends on climates that allow emotion to be acknowledged, shared, and integrated. When learners can process and find meaning in difficult experiences—grief, fear, shame, and moral distress—they build empathy, resilience, and authenticity³¹. A simple diagnostic for leaders is whether the local culture rewards honest uncertainty or penalizes it.

Programs can counteract these effects by re-distributing authority, emphasizing team-based goals, and rewarding collaboration over comparison³²⁻³⁴. When learners experience genuine voice and psychological safety, they are more willing to share uncertainty and engage in collective problem-solving. Otherwise, intrinsic motivation—driven by curiosity and shared purpose—cannot take root. Practically, leaders can lower unnecessary hierarchy by normalizing questions, modeling uncertainty, and designing team norms that make speaking up routine, so collaboration, not status management, becomes the default learning climate³¹.

Tip 4. Replace controlling faculty behaviours with autonomy support

Micromanagement, rigid directives, and public shaming do more than demoralize learners—they actively frustrate autonomy, competence, and relatedness, triggering stress, self-protection, and withdrawal³⁵. Large-scale, multi-site studies show that when faculty fail to support these needs, residents show higher burnout, disengagement, and weaker organizational commitment³⁶. Within SDT's dual-process model, this dynamic represents the “dark pathway” of motivation, where pressure and fear, rather than volition and purpose, drive behaviour. Within JD-R, controlling supervision functions as a social-evaluative demand, making routine learning chronically effortful.

Breaking this cycle requires more than isolated workshops. Controlling behaviours are rarely malicious; they more often reflect faculty members' own need frustration or entrenched norms that equate control with rigour and efficiency^{37,38}. Addressing them therefore demands institutional change. Autonomy-supportive strategies—acknowledging perspectives, offering rationales, and inviting input—should be woven into faculty development, feedback, and evaluation systems. Institutions can also reduce the upstream pressures that elicit controlling habits (e.g., time scarcity, role overload, unclear expectations), making autonomy support more feasible in daily supervision.

When leaders model empathy, flexibility, and reflective feedback, they demonstrate that control is not synonymous with competence. Embedding autonomy support into routine practice—how feedback is delivered, how choices are framed, and how time pressures are managed—ensures that supervision reliably builds capacity and trust rather than fear and withdrawal³⁹.

Tip 5. Streamline bureaucracy to reduce cognitive and emotional load

Excessive workload and administrative burden remain among the strongest predictors of burnout in medicine⁴⁰. For learners, this extends beyond clinical care to include documentation, assessments, and mandatory modules that often feel duplicative or disconnected from purpose. Such hindrance demands drain energy and undermine autonomy and competence by diverting effort from meaningful learning. Large-scale workforce studies confirm that when systems are weighed down by bureaucracy and insufficient support, engagement and satisfaction

decline while burnout accelerates⁴¹. The issue is often not volume alone, but low-value work that crowds out learning, recovery, and patient connection.

In medical education, entrustment and assessment systems often feel performative, with feedback reduced to paperwork and checkboxes^{42,43}. Fragmented IT systems and redundant forms overload cognition and signal mistrust, while poorly designed physical spaces—overcrowded nurse stations, inadequate work surfaces, harsh lighting, and noise—compound fatigue and interfere with focus. Learners documenting while standing in hallways or competing for computers internalize a message—that their time and attention are expendable. These are predictable consequences of system design, not individual resilience gaps.

Programs can consolidate digital platforms, eliminate duplication, and simplify EPA workflows⁴⁴. Reliable, private workstations and quiet documentation zones, equipped with adequate seating, technology, and lighting, enhance both cognitive efficiency and psychological safety. Even modest design changes, like reducing hallway documentation or optimizing workspace layout, restore a sense of competence. Providing protected time and on-demand administrative support shifts culture from compliance to contribution. The aim is to eliminate duplication, simplify workflows, and design workspaces that signal respect, freeing attention for patients, feedback, and recovery.

Tip 6. Make justice and safety integral to institutional design

Sexual harassment, abuse, and discrimination remain alarmingly prevalent in medicine, with systematic reviews reporting rates as high as 60%, particularly among women and marginalized groups⁴⁵. Yet institutional responses often compound harm—processes are opaque, overly procedural, and more attuned to risk management than to healing. Reports are frequently miscategorized or reframed, with greater attention paid to institutional liability than to the dignity and safety of those affected⁴⁶. A learner who reports a supervisor's inappropriate behaviour may see the case downgraded to “incivility,” delaying protection and deepening disillusionment. What appears administrative is often experienced as silencing, compounding harm rather than resolving it. These failures are not separate from wellness: they predictably erode trust, frustrate psychological needs, and create moral injury, especially when people anticipate futility or reprisal.

A key indicator is whether reporting pathways restore voice and control or remove it. Embedding justice directly into institutional design—through transparent processes, trauma-informed support, and meaningful choice—restores autonomy, trust, and moral legitimacy⁴⁷. This includes clear timelines, trained advocates, closed loop communication to the reporter, and pattern tracking across units rather than isolating cases. When reporting pathways are transparent, supported, and closed-loop, justice functions as a trust-building resource rather than a source of further harm.

Amplifying resources: supporting the satisfaction of basic psychological needs

Medicine is inherently rich with opportunities for meaning, growth, and connection. But even when major barriers are removed, flourishing does not arise automatically. Sustained well-being requires the deliberate cultivation of resources that replenish energy, reinforce purpose, and enable people to meet challenge with vitality rather than depletion. Enhancing wellness therefore means not only reducing harm, but actively designing environments that support autonomy, competence, and relatedness as renewable sources of motivation. The following strategies shift the focus from repair to cultivation, strengthening the conditions that allow demanding work to remain meaningful, energizing, and sustainable over time.

Tip 7. Design workloads that replenish energy and reinforce purpose

When designed intentionally, workload becomes a vehicle for learning and identity formation rather than a source of depletion. Within JD-R, challenge demands—steep learning curves, clinical responsibility, and complex patient care—can be deeply motivating when balanced by adequate resources such as attentive supervision, timely feedback, and protected recovery time. What distinguishes growth from strain is not simply hours worked, but whether effort unfolds within coherent, educationally balanced systems^{48,49}. In SDT terms, challenge is most sustainable when it feels supported and meaningful rather than imposed and isolating.

Resources that sustain energy include protected rest, manageable cognitive load, and opportunities for purposeful contribution. Even small design choices—quiet call rooms, access to food, and spaces conducive to documentation and decompression—shape focus and recovery. Completing meaningful clinical work with continuity (e.g., following a patient from assessment through plan) or receiving authentic appreciation reinforces competence and relatedness, re-anchoring effort to purpose. Conversely, excessive cross-coverage, redundant paperwork, and unacknowledged labour turn challenge into hindrance, draining motivation. The practical goal is not “less work,” but work that is intentionally designed so challenge remains developmental rather than depleting.

Programs can promote sustainable excellence by reducing low-value friction, distributing service demands equitably, and making meaning more visible through coaching, reflection, and shared narratives, so learners’ effort translates into growth, contribution, and recovery over time.

Tip 8. Balance clinical responsibility with developmental support

Authentic clinical responsibility is a potent developmental resource that nourishes autonomy, competence, and relatedness. Meaningful patient care—not peripheral tasks or busy work—allows learners to experience ownership, mastery, and contribution. Within the JD-R framework, such responsibilities function as challenge demands that strengthen motivation when paired with adequate support⁵⁰.

The value of this balance is evident in both theory and practice. Excessive oversight can undermine autonomy and strain relationships, while removing responsibility altogether deprives learners of purpose and growth⁵¹. The central task is therefore calibration: matching clinical responsibility to learners' developing competence while ensuring reliable supervision and psychological safety. This balance allows challenge to be experienced as supportively held rather than as exposure.

Evidence supports this approach. Sawatsky *et al.*⁵² demonstrated that entrustment aligned with competence strengthens engagement and professional identity, enabling learners to internalize responsibility as growth instead of burden. A resident trusted to lead a patient handover under guided supervision experiences responsibility as empowerment, not threat. Programs can operationalize this by scaffolding responsibility with clear expectations, timely feedback, and graduated entrustment—ensuring that responsibility functions as a renewable resource that fuels learning, identity formation, and sustained motivation.

Tip 9. Elevate learner voice through authentic partnership

Learner leadership roles have the potential to function as powerful motivational resources—supporting autonomy, competence, and relatedness—when they provide genuine influence over decisions that shape training. When participation is symbolic rather than substantive, however, these same roles can feel hollow, offering visibility without impact and limiting their developmental value. Reviews of learner engagement in health professions education consistently note that decision-making involvement is often poorly defined and constrained, reducing its capacity to support meaningful agency^{53,54}.

Authentic partnership transforms participation into a resource rather than a burden. Evidence from student-faculty co-design initiatives demonstrates that when learners share real responsibility and influence, engagement, trust, and collective resilience increase⁵⁵. These roles allow learners to develop leadership skills, systems thinking, and professional identity while contributing to institutional improvement. In this way, partnership supports not only individual growth but also organizational learning.

Programs can maximize the value of learner voice by designing leadership roles with clear scope, continuity, and authority. Effective partnerships have structures that persist beyond individual cohorts, processes in which learner input precedes key decisions, and alignment between institutional priorities and learners' developmental goals. Learners are already leading innovation in areas like equity, digital education, and sustainability, yet these contributions often remain fragmented or underutilized⁵⁶. When institutions share decision ownership and make impact visible, learner partnership becomes a renewable resource—fueling motivation, belonging, and shared accountability rather than functioning as unpaid cognitive or emotional labour⁵⁷.

Tip 10. Deliver feedback that builds competence and agency

In many programs, feedback is experienced as inconsistent, bureaucratic, or primarily evaluative rather than developmental. When delivered sporadically or framed as judgment, feedback functions as a hindrance demand: it heightens anxiety, undermines confidence, and contributes to disengagement rather than learning. Educators may also struggle with delivering corrective or “negative” feedback, fearing it will feel confrontational or demoralizing, often leading to avoidance or dilution that further reduces its usefulness. Such feedback practices are often perceived as performance threats rather than supportive resources.

An alternative approach is to reconceptualize feedback as a resource for competence and agency. High frequency, low-stakes feedback—embedded in bedside observation, coaching conversations, or reflective portfolios—helps learners calibrate performance and build mastery over time. Programs that integrate brief goal-setting and reflection consistently report higher engagement and more accurate self-assessment than those relying on episodic input⁵⁸. Within SDT, even corrective feedback can enhance motivation when it is delivered with empathy, clarity, and clear rationale⁵⁹. When framed as guidance rather than judgment, feedback transforms anxiety into trust, supporting internalization and sustained motivation⁶⁰. In JD-R terms, feedback shifts from a hindrance demand to a protective resource that promotes confidence, learning, and resilience.

Operationalizing this shift requires intentional practices at both the learner and faculty levels. A practical antidote to evaluative feedback cultures is the normalization of agentic engagement: learners actively shape feedback by clarifying goals, inviting critique, and contributing ideas for improvement⁶¹⁻⁶³. When faculty respond with curiosity rather than verdict—for example, by asking, “What would be most useful for you to hear right now?”—feedback becomes collaborative rather than surveillant, supporting competence and autonomy^{64,65}. Programs can reinforce this approach by explicitly teaching learners how to request feedback effectively and training faculty to respond in ways that avoid slipping into performance policing. The aim is not simply *more* feedback, but feedback that is usable, respectful, and oriented toward growth.

Tip 11. Foster belonging through inclusion and psychological safety

Training environments must help learners feel safe, seen, and valued if motivation and learning are to be sustained. Belonging is shaped not only through interpersonal interactions but also through physical and symbolic cues, such as inclusive imagery, accessible design, and welcoming communal spaces, which can communicate respect and legitimacy as powerfully as formal policies. When learners are able to bring their full selves to training, relatedness deepens, competence grows, and motivation strengthens. Within the JD-R framework, inclusion and psychological safety operate as core job resources that

buffer stress and sustain engagement. In SDT terms, belonging is not a “nice to have,” but a foundational condition for motivated learning in high-stakes environments^{66,67}.

Empirical evidence consistently supports this framing. Ganotice *et al.*⁶⁸ demonstrated that curricula explicitly supporting autonomy, competence, and relatedness improved teamwork, engagement, and collective goal attainment. McClintock *et al.*⁶⁹ showed that autonomy-supportive teaching was critical to psychological safety, whereas disinterest or dismissiveness rapidly fractured it. Notably, once psychological safety was lost, learners rarely reported it being fully restored, highlighting the importance of proactive, rather than reactive, climate building. Small everyday behaviours matter: faculty acknowledging uncertainty, inviting questions, or sharing their own learning missteps, can rebuild trust in ways that policies alone cannot. Leaders play a key role by protecting time for teaching, debriefing, and follow-up, rather than treating relational work as optional or expendable.

Programs can further embed inclusion by pairing anti-bias education with structural supports, such as amplifying underrepresented voices and creating meaningful leadership pathways for marginalized groups. Faculty development should emphasize empathy, humility, and reflective practice; without these, diversity initiatives risk remaining aspirational rather than embodied. Psychological safety is most durable when it is woven into routine practices—how rounds are conducted, how questions are received, and how mistakes are discussed—rather than invoked as a slogan. Leaders can reinforce this by evaluating and supporting teaching climates, not only individual performance, signaling that belonging and safety are shared responsibilities and institutional priorities⁶⁷.

Tip 12. Build relational continuity through faculty-learner partnerships

Sustained, trusting relationships between faculty and learners are foundational to motivation and well-being. Longitudinal integrated clerkships (LICs), in which learners remain with the same team or preceptor over time, exemplify this continuity and are associated with stronger feedback, coaching, and mentorship⁷⁰. A BEME systematic review found consistent benefits for learning, professional development, and satisfaction⁷¹. When full LICs are not feasible, similar advantages can be achieved through stable team assignments, consistent preceptors, or schedules that preserve relational continuity. Within the JD-R framework, such continuity functions as a high-yield job resource, reducing uncertainty while increasing the accessibility and effectiveness of support.

Relational continuity enables supervision to evolve from episodic oversight into a developmental partnership. Over time, faculty gain a more accurate understanding of learners’ abilities and trajectories, allowing for fairer assessment, more credible feedback, and support that is both timely and personalized⁵⁸. Repeated interaction with consistent role models also supports professional identity formation, as learners internalize values, norms, and ways of being in practice⁷². From an SDT perspective, these relationships foster psychological safety and need satisfaction, enabling learners to stretch beyond comfort

zones with confidence and trust. Faculty who follow learners longitudinally can more authentically recognize growth, set expectations, and model vulnerability, demonstrating that expertise and humility can coexist.

Faculty workload concerns are legitimate, but continuity can be mutually sustaining⁷³. Faculty mentors often report greater meaning and connection when they are able to witness learners’ progression over time. Institutions can support these partnerships through deliberate pairing strategies, protected mentorship time, and faculty development focused on coaching and longitudinal assessment. Investing in relational continuity helps ensure that supervision is not merely evaluative, but a shared developmental enterprise that strengthens learning, fairness, and long-term engagement.

Conclusion: From theory to transformative practice

Medical education has made meaningful progress in addressing physician burnout, yet efforts often remain fragmented and overly focused on individual coping. Across the literature, countless interventions show promise but remain difficult to replicate and theoretically underpowered. Self-Determination Theory (SDT) and the Job Demands-Resources (JD-R) model can help unite these disparate efforts under a single explanatory framework, offering shared language, validated metrics, and a scalable roadmap for reform. Their integration enables educators and institutions to coordinate strategies, compare outcomes, and build cumulative knowledge grounded in motivation science rather than intuition.

By contrast, SDT and JD-R provide a coherent foundation for sustainable reform, clarifying not only why motivation matters, but how to cultivate it across systems. This paper outlined twelve interconnected strategies that reduce hindrance demands and strengthen resources, moving wellness efforts beyond surface-level fixes toward enduring cultural transformation. The goal is not to remove challenge, but to ensure that high standards and hard work take place within climates that support autonomy, competence, and relatedness.

Ultimately, the call to align systems with human needs is not only a matter of design—it is a matter of conscience. Physicians and learners cannot flourish in systems that drain their sense of purpose or isolate them from genuine connection. Supporting motivation is therefore a professional, ethical, and human imperative—a reminder that well-being and excellence arise from the same moral foundation. When institutions honour this truth—through the spaces they create, the policies they craft, and the relationships they sustain—medical education can move beyond endurance toward a culture of vitality, integrity, and compassion.

Ethics and consent

Ethical approval and consent were not required.

Data availability

No data are associated with this article.

References

- Shanafelt TD: **Physician well-being 2.0: where are we and where are we going?** *Mayo Clin Proc.* 2021; **96**(10): 2682-2693. [PubMed Abstract](#) | [Publisher Full Text](#)
- De Simoni S, Vargas M, Servillo G: **Organizational strategies to reduce physician burnout: a systematic review and meta-analysis.** *Aging Clin Exp Res.* 2021; **33**(4): 883-894. [PubMed Abstract](#) | [Publisher Full Text](#)
- Shanafelt T, Swensen SJ, Woody J, et al.: **Physician and nurse well-being: seven things hospital boards should know.** *J Healthc Manag.* 2018; **63**(6): 363-369. [PubMed Abstract](#) | [Publisher Full Text](#)
- Shanafelt TD, Noseworthy JH: **Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout.** *Mayo Clin Proc.* 2017; **92**(1): 129-146. [PubMed Abstract](#) | [Publisher Full Text](#)
- Greenberg N: **Mayo clinic strategies to reduce burnout. 12 Actions to create the ideal workplace.** *Occup Med (Chic Ill).* 2022; **72**(6): 428. [Publisher Full Text](#)
- Neufeld A: **Revealing the blind spots: five key challenges for advancing physician wellness.** *Can Med Ed J.* 2025; **16**(5): 89-94. [Publisher Full Text](#)
- Maurana CA, Fritz JD, Witten AA, et al.: **Advancing flourishing as the north star of medical education: a call for personal and professional development as key to becoming physicians.** *Med Teach.* 2024; **46**(12): 1539-1543. [PubMed Abstract](#) | [Publisher Full Text](#)
- Ryan RM, Duineveld JJ, Di Domenico SI, et al.: **We know this much is (meta-analytically) true: a meta-review of meta-analytic findings evaluating self-determination theory.** *Psychol Bull.* 2022; **148**(11-12): 813-842. [Publisher Full Text](#)
- Ryan RM, Deci EL: **Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being.** *Am Psychol.* 2000; **55**(1): 68-78. [PubMed Abstract](#) | [Publisher Full Text](#)
- Donald JN, Bradshaw EL, Conigrave JH, et al.: **Paths to the light and dark sides of human nature: a meta-analytic review of the prosocial benefits of autonomy and the antisocial costs of control.** *Psychol Bull.* 2021; **147**(9): 921-946. [Publisher Full Text](#)
- Neufeld AP, Rigby CS: **Autonomy versus independence: implications for resident and faculty engagement, performance, and well-being.** *HCA Healthc J Med.* 2024; **5**(3): 209-213. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Demerouti E, Bakker AB, Nachreiner F, et al.: **The job demands-resources model of burnout.** *J Appl Psychol.* 2001; **86**(3): 499-512. [PubMed Abstract](#) | [Publisher Full Text](#)
- Tummers LG, Bakker AB: **Leadership and job demands-resources theory: a systematic review.** *Front Psychol.* 2021; **12**: 722080. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Robledo E, Topa G: **Building healthy organizations tapping into the motivational process of the Job Demands-Resources (JD-R) model. In: Positive psychology for healthy organizations: the challenge of primary prevention in a cross-cultural perspective.** 2019. [Reference Source](#)
- Marsh H, Ryan MR, Dicke T, et al.: **Basic psychological need satisfaction and frustration in the ecology of school principals: a multitrait-multimethod and nomological-network examination of the BPNFS.** *Educ Psychol Rev.* 2025. [Reference Source](#)
- Bakker A, Mostert K: **Study demands-resources theory: understanding student well-being in higher education.** *Educ Psychol Rev.* 2024; **36**: 92. [Publisher Full Text](#)
- Scott AL: **Intersections of culture and well-being in the workplace environment.** University of Minnesota, 2015. [Reference Source](#)
- Robins TG, Roberts RM, Sarris A: **Burnout and engagement in health profession students: the relationships between study demands, study resources and personal resources.** *Australas J Organ Psychol.* 2015; **8**: e1. [Publisher Full Text](#)
- Hansen SE, Defenbaugh N, Mathieu SS, et al.: **A mixed-methods exploration of the developmental trajectory of autonomous motivation in graduate medical learners.** *Med Sci Educ.* 2021; **31**(6): 2017-2031. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Liu F, Niu P, Yu S, et al.: **Investigating students' perceptions of the medical education environment and learning autonomy in blended learning in pediatrics: a cross-sectional study.** *BMC Med Educ.* 2024; **24**(1): 1464. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Zhu Y, Dolmans D, Kusurkar RA, et al.: **Promoting students' autonomous motivation for the ongoing curriculum using a 'Societal Impact Project' with basic psychological needs characteristics.** *Med Teach.* 2025; **47**(6): 955-962. [PubMed Abstract](#) | [Publisher Full Text](#)
- Assor A, Kaplan H, Roth G: **Choice is good, but relevance is excellent: autonomy-enhancing and suppressing teacher behaviours predicting students' engagement in schoolwork.** *Br J Educ Psychol.* 2002; **72**(Pt 2): 261-278. [PubMed Abstract](#) | [Publisher Full Text](#)
- Templeton K, Vanston P, Luciw-Dubas UA, et al.: **Navigating a high-stakes assessment in medical school: students' lived experiences during a stressful period of preparation.** *J Med Regul.* 2022; **108**(2): 7-18. [Publisher Full Text](#)
- Vilwock JA, Sabin LB, Koester LA, et al.: **Impostor syndrome and burnout among American medical students: a pilot study.** *Int J Med Educ.* 2016; **7**: 364-369. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Menezes S, Carpenter KM, Diaz JBB, et al.: **Learning from the past: medical school experiences, stigma, and help seeking for depression.** *Psychol Health Med.* 2025; **30**(9): 1904-1919. [PubMed Abstract](#) | [Publisher Full Text](#)
- van der Goot WE, Van Yperen NW, Albers CJ, et al.: **Effects of (de)motivating supervision styles on junior doctors' intrinsic motivation through basic psychological need frustration and satisfaction: an experimental vignette study.** *Adv Health Sci Educ Theory Pract.* 2025; **30**(2): 401-426. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Ryan RM, Weinstein N: **Undermining quality teaching and learning: a self-determination theory perspective on high-stakes testing.** *Theory Res Educ.* 2009; **7**(2): 224-233. [Publisher Full Text](#)
- Elliot AJ, Dweck CS, Yeager DS: **Handbook of competence and motivation: theory and application.** 2017. [Reference Source](#)
- Neufeld A, Malin G, Babenko O, et al.: **Workplace causality orientations moderate impostorism and burnout: new insights for wellness interventions in graduate medical education.** *Teach Learn Med.* 2025; **37**(4): 575-583. [PubMed Abstract](#) | [Publisher Full Text](#)
- Salehi PP, Jacobs D, Suhail-Sindhu T, et al.: **Consequences of medical hierarchy on medical students, residents, and medical education in otolaryngology.** *Otolaryngol Head Neck Surg.* 2020; **163**(5): 906-914. [PubMed Abstract](#) | [Publisher Full Text](#)
- Neufeld A: **From suppression to integration: a self-determination theory perspective on emotion regulation in medical education.** *Clin Teach.* 2025; **22**(6): e70240. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Boitet LM, Meese KA, Sweeney KL, et al.: **Towards safer spaces: an empirical investigation of trainee psychological safety within academic medical centers.** *Adv Med Educ Pract.* 2024; **15**: 1079-1092. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Dong C, Altshuler L, Ban N, et al.: **Psychological safety in health professions education: insights and strategies from a global community of practice.** *Front Med (Lausanne).* 2025; **11**: 1508992. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Thomas M, Bigatti S: **Perfectionism, impostor phenomenon, and mental health in medicine: a literature review.** *Int J Med Educ.* 2020; **11**: 201-213. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Gupta S, Howden S, Moffat M, et al.: **Negotiating the dual role of performer and learner: medical students' impression management in the clinical learning environment.** *Med Teach.* 2025; **47**(11): 1804-1814. [PubMed Abstract](#) | [Publisher Full Text](#)
- Brafford AM, Ellis B, Guldner G, et al.: **A multi-wave study of factors associated with resident engagement, depression, burnout, and stay intent.** *HCA Healthc J Med.* 2024; **5**(3): 313-330. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Reeve J: **Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive.** *Educ Psychol.* 2009; **44**(3): 159-175. [Publisher Full Text](#)
- Reeve J, Vansteenkiste M, Assor A, et al.: **The beliefs that underlie autonomy-supportive and controlling teaching: a multinational investigation.** *Motiv Emot.* 2014; **38**: 93-110. [Publisher Full Text](#)
- Cheon SH, Reeve J, Yu TH, et al.: **The teacher benefits from giving autonomy support during physical education instruction.** *J Sport Exerc Psychol.* 2014; **36**(4): 331-346. [PubMed Abstract](#) | [Publisher Full Text](#)
- Prentice S, Dorstyn D, Benson J, et al.: **Burnout levels and patterns in**

postgraduate medical trainees: a systematic review and meta-analysis. *Acad Med.* 2020; 95(9): 1444–1454.
[PubMed Abstract](#) | [Publisher Full Text](#)

41. Pirrotta L, Cantarelli P, Belli N: **Exploring the role of staffing needs in JD-R theory: evidence from public healthcare organizations.** *Manag Decis.* 2025; 63(13): 282–301.
[Publisher Full Text](#)

42. Boyd VA, Whitehead CR, Thille P, et al.: **Competency-based medical education: the discourse of infallibility.** *Med Educ.* 2018; 52(1): 45–57.
[PubMed Abstract](#) | [Publisher Full Text](#)

43. Mann S, Hastings Truelove A, Beesley T, et al.: **Resident perceptions of competency-based medical education.** *Can Med Educ J.* 2020; 11(5): e31–e43.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

44. Hill MR, Goicochea S, Merlo LJ: **In their own words: stressors facing medical students in the millennial generation.** *Med Educ Online.* 2018; 23(1): 1530558.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

45. Fnais N, Soobiah C, Chen MH, et al.: **Harassment and discrimination in medical training: a systematic review and meta-analysis.** *Acad Med.* 2014; 89(5): 817–827.
[PubMed Abstract](#) | [Publisher Full Text](#)

46. Siad FM, Rabi DM: **Harassment in the field of medicine: cultural barriers to psychological safety.** *CJC Open.* 2021; 3(12 Suppl): S174–S179.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

47. Yasué M, Weinstein N, Harris SE, et al.: **Embedding equity and inclusion in universities through motivational theory and community-based conservation approaches.** *Conserv Biol.* 2024; 38(6): e14384.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

48. Triebner N, Sonnauer F, Rauch M, et al.: **Promoting motivation and reducing stress in medical students by utilizing self-determination theory – a randomized controlled trial in practical psychiatry courses.** *BMC Med Educ.* 2024; 24(1): 1177.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

49. Jung FU, Bodendieck E, Bleckwenn M, et al.: **Burnout, work engagement and work hours – how physicians' decision to work less is associated with work-related factors.** *BMC Health Serv Res.* 2023; 23(1): 157.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

50. Tadić M, Bakker AB, Oerlemans WGM: **Challenge versus hindrance job demands and well-being: a diary study on the moderating role of job resources.** *J Occup Organ Psychol.* 2015; 88(4): 702–725.
[Publisher Full Text](#)

51. Lee J, Ahn S, Henning MA, et al.: **Micromanagement in clinical supervision: a scoping review.** *BMC Med Educ.* 2023; 23(1): 563.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

52. Sawatsky AP, O'Brien BC, Hafferty FW: **Autonomy and developing physicians: reimagining supervision using self-determination theory.** *Med Educ.* 2022; 56(1): 56–63.
[PubMed Abstract](#) | [Publisher Full Text](#)

53. Neshastesaz Kashi H, Goharinezhad S, Soleimanpour S, et al.: **Mapping student engagement in health professions education policy and decision-making: a scoping review.** *BMC Med Educ.* 2024; 24(1): 325.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

54. Anderson A, Austin D, Walton C, et al.: **Planning for co-curricular design-student voice, power dynamics and threshold learning: a thematic analysis of the student perspective.** *Int J Students as Partners.* 2023; 7(1): 18–38.
[Publisher Full Text](#)

55. Ambrosetti E, Gaudin C, Flandin S, et al.: **Students as co-designers in health professional education: a scoping review.** *BMC Med Educ.* 2025; 25(1): 645.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

56. Rincón EHH, Jiménez D, Aguilar LAC, et al.: **Mapping the use of artificial intelligence in medical education: a scoping review.** *BMC Med Educ.* 2025; 25(1): 526.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

57. Segon A, Sharma-Segon Y: **The impact of asking medical students what they want to learn on student participation in lectures.** *Cureus.* 2023; 15(12): e50970.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

58. Natesan S, Jordan J, Sheng A, et al.: **Feedback in medical education: an evidence-based guide to best practices from the council of residency directors in emergency medicine.** *West J Emerg Med.* 2023; 24(3): 479–494.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

59. Carpenter J, Mageau GA: **When change-oriented feedback enhances motivation, well-being and performance: a look at autonomy-supportive feedback in sport.** *Psychol Sport Exerc.* 2013; 14(3): 423–435.
[Publisher Full Text](#)

60. Neufeld A, Smith R, Guldner G: **From compliance to commitment: supporting autonomous growth in competency-based medical education.** *Acad Med.* In Press. 2025; wva090.
[Reference Source](#)

61. Reeve J, Tseng CM: **Agency as a fourth aspect of students' engagement during learning activities.** *Contemp Educ Psychol.* 2011; 36(4): 257–267.
[Publisher Full Text](#)

62. Cheon SH, Reeve J, Lee Y, et al.: **Why autonomy-supportive interventions work: explaining the professional development of teachers' motivating style.** *Teach Teach Educ.* 2018; 69: 43–51.
[Publisher Full Text](#)

63. Reeve J, Cheon SH, Yu TH: **An autonomy-supportive intervention to develop students' resilience by boosting agentic engagement.** *Int J Behav Dev.* 2020; 44(4): 325–338.
[Publisher Full Text](#)

64. Sargeant J, Mann K, van der Vleuten C, et al.: **"Directed" self-assessment: practice and feedback within a social context.** *J Contin Educ Health Prof.* 2008; 28(1): 47–54.
[PubMed Abstract](#) | [Publisher Full Text](#)

65. Van Der Vleuten CPM, Schuwirth LWT, Driessens EW, et al.: **Twelve tips for programmatic assessment.** *Med Teach.* 2015; 37(7): 641–646.
[PubMed Abstract](#) | [Publisher Full Text](#)

66. McKenna KM, Hashimoto DA, Maguire MS, et al.: **The missing link: connection is the key to resilience in medical education.** *Acad Med.* 2016; 91(9): 1197–9.
[PubMed Abstract](#) | [Publisher Full Text](#)

67. Youmans QR, Maldonado M, Essien UR, et al.: **Building inclusion and belonging in training environments.** *J Grad Med Educ.* 2022; 14(3): 333–334.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

68. Ganotica FA Jr, Chan KMK, Chan SL, et al.: **Applying motivational framework in medical education: a self-determination theory perspectives.** *Med Educ Online.* 2023; 28(1): 2178873.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

69. Mcclintock AH, Fainstad TL, Jauregui J: **Clinician teacher as leader: creating psychological safety in the clinical learning environment for medical students.** *Acad Med.* 2022; 97(11S): S46–S53.
[PubMed Abstract](#) | [Publisher Full Text](#)

70. Bates J, Konkin J, Suddards C, et al.: **Student perceptions of assessment and feedback in longitudinal integrated clerkships.** *Med Educ.* 2013; 47(4): 362–74.
[PubMed Abstract](#) | [Publisher Full Text](#)

71. Thistlethwaite JE, Bartle E, Chong AAL, et al.: **A review of longitudinal community and hospital placements in medical education: BEME guide no. 26.** *Med Teach.* 2013; 35(8): e1340–64.
[PubMed Abstract](#) | [Publisher Full Text](#)

72. El Brown M, Whybrow P, Kirwan G, et al.: **Professional identity formation within Longitudinal Integrated Clerkships: a scoping review protocol.** *Syst Rev.* 2020; 9(1): 166.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

73. Steinert Y, Mann K, Anderson B, et al.: **A systematic review of faculty development initiatives designed to enhance teaching effectiveness: a 10-year update: BEME guide no. 40.** *Med Teach.* 2016; 38(8): 769–86.
[PubMed Abstract](#) | [Publisher Full Text](#)

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 **Binata Mukherjee** 

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Thank you for addressing all the concerns I had raised. This manuscript is well organized, clear, and easy to follow.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Provider burnout, Provider wellness, Leadership education and training, Coaching

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 13 November 2025

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 **Shaun Prentice** 

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Dear Dr Neufeld,

Thank you for incorporating my suggested edits into your manuscript, I believe they have substantially strengthened this already excellent paper. Congratulations on producing this piece.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Medical education, medical trainee burnout and wellbeing, clinical psychology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

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Burnout and wellness are topics of concern for physicians and trainees, and therefore deserve due attention. It is commendable that the author is attempting to provide theory-informed practical tips. My suggestions for revisions are essentially meant to strengthen the manuscript.

1. Burnout and wellness have been used interchangeably based on the underlying assumption that addressing/reducing burnout leads to wellness, which may not necessarily be true. The two concepts are distinct. Absence of one does not mean presence of the other. I would expect this assumption to be made explicit upfront.

2. The paper is mostly focused on graduate medical education and not the entire continuum of medical education of UME and GME. It would be great to make that clear upfront so that readers are not kept guessing. This may mean rewriting sentences that may have hinted at UME, e.g., Tip 11. Also in some places the entire physician population have been included which may be redirected to physician trainees; e.g., suicide rate etc may be given for trainees specifically.

3. While most of the paper is based on theory-driven concepts, only in the conclusion 'evidence-based' is introduced in association with theory-driven. As the previous reviewers have pointed out, it is desirable to clearly delineate and point out which ones are evidence-based vs which ones are theory-driven claims.

4. Tip 3 and Tip 4 - both refer to hierarchy and may be either combined or made more distinct.

5. While some tips clearly address hindrances, some increase resources, some do both. For example, Tip 8 and Tip 1, Tip 9 and Tip 2, Tip 11 and Tip 3 do both. So the paper may reorganized into three groups: hindrances, resources and both.

5. While it is desirable to reduce administrative duties during training, in reality these are inevitable aspects of one's job after graduation especially if one chooses to be in academic medicine. Even though it is not the direct scope of the paper, it might be relevant to include some thoughts on the downstream effects if these reforms were to take place.

To conclude, this is a well written manuscript that should help medical educators in GME.

Is the topic of the practical tips discussed accurately in the context of the current literature
Partly

Are all factual statements correct and adequately supported by citations?

Partly

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?

Partly

If evidence from practice is presented, are all the underlying source data available to ensure full reproducibility?

Not applicable

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Provider burnout, Provider wellness, Leadership education and training, Coaching

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 27 Oct 2025

Adam Neufeld

I would like to express my sincere gratitude to the reviewer for their thoughtful and constructive feedback. I appreciate their recognition of the manuscript's theoretical grounding, practical relevance, and potential value to graduate medical education. Each of the reviewer's comments has been carefully considered and used to strengthen the conceptual clarity, structure, and applicability of the paper. Below, I outline the specific revisions made in response.

1. Clarifying the distinction between burnout and wellness

I fully agreed with the reviewer's important point that burnout and wellness are distinct constructs and should not be used interchangeably. In the revised manuscript, this distinction is now made explicit in both the **Abstract** and **Introduction**. I clarified that the reduction of burnout does not automatically confer wellness, and that thriving represents a qualitatively distinct state characterized by vitality, meaning, and engagement. This conceptual separation is now framed as central to the paper's argument—that the goal of reform is not merely to reduce distress but to actively cultivate flourishing.

2. Clarifying scope and continuum of focus (UME vs. GME)

I have clarified early in the **Introduction** that the paper's primary focus is on graduate medical education (GME), while acknowledging that many of the principles and strategies are applicable across the continuum of medical training. This revision prevents ambiguity regarding scope and audience. In addition, references and examples that previously implied a broader physician population have been adjusted to focus specifically on trainees where appropriate. For example, mentions of burnout and suicide rates now specify findings from resident or trainee populations.

3. Distinguishing theory-driven and evidence-based claims

Consistent with this reviewer's and others' feedback, the manuscript now explicitly distinguishes between **empirically supported** and **theoretically informed** recommendations. Within each tip, I identify whether statements derive primarily from SDT and JD-R theory or are backed by empirical evidence such as large-scale studies, systematic reviews, or applied interventions. This enhances transparency and helps readers understand the empirical grounding of the recommendations.

4. Clarifying the distinction between Tip 3 and Tip 4

The reviewer correctly noted overlap between **Tip 3 (Flatten Hierarchies and Diminish Competitive Climates)** and **Tip 4 (Replace Controlling Faculty**

Behaviours with Autonomy Support). In the revised manuscript, these tips have been further differentiated. Tip 3 now focuses on *structural and cultural hierarchies* that shape group dynamics and climate, while Tip 4 emphasizes *interpersonal behaviours and leadership styles* that influence motivation and psychological need support at the faculty–learner level. The refined framing makes their conceptual boundaries clearer and preserves their complementary contributions.

5. Clarifying rationale for organizational structure of tips

The reviewer suggested reorganizing the tips into three groups (hindrances, resources, and both). I considered this carefully and have retained the original two-section organization—six tips addressing hindrance demands and six amplifying resources—because this structure aligns directly with the Job Demands–Resources model and is consistent with frameworks used in the organizational psychology literature. However, I revised several transition statements to acknowledge that some strategies (e.g., Tips 1, 8, 9, and 11) function across both domains by simultaneously reducing barriers and enhancing supports. This clarification preserves theoretical coherence while recognizing the multidimensional nature of certain reforms.

6. Addressing downstream implications of reduced administrative burden

I appreciated the reviewer's thoughtful suggestion to reflect on the downstream implications of reducing administrative duties, especially for those who pursue academic medicine. In **Tip 5 (Streamline Bureaucracy to Reduce Cognitive and Emotional Load)**, I have added a brief discussion acknowledging that while

administrative tasks are inevitable in professional practice, their design, relevance, and proportionality during training shape long-term attitudes toward such work. The revised text emphasizes that the goal is not to eliminate administrative responsibility but to align it with purpose, efficiency, and developmental value—preparing trainees for sustainable practice rather than shielding them from reality.

Once again, I thank the reviewer for their constructive insights and collegial tone. Their feedback has strengthened the conceptual precision, internal organization, and practical utility of the manuscript, making it a clearer and more valuable resource for educators and leaders in graduate medical education.

Competing Interests: No competing interests were disclosed.

Reviewer Report 15 September 2025

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Luca Pirrotta

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³ Institute of Management and Department EMbeDS, Scuola Superiore Sant'Anna, Pisa, Italy

Dear Editor,

Thank you for the opportunity to review this manuscript.

I greatly appreciate authors' effort in addressing the critical issue of physician wellness in medical education. The integration of Self-Determination Theory (SDT) and the Job Demands-Resources (JD-R) model into a set of actionable recommendations is both timely and highly relevant. The manuscript is well-structured and has the potential to become a significant reference in the literature.

Overall, I believe this work is of publishable quality. At the same time, I would encourage a few revisions that could further enhance its clarity, accessibility, and empirical grounding:

At times, it is not entirely clear which recommendations are supported by empirical evidence, and which are primarily grounded in theoretical reasoning. I recommend making this distinction more explicit (e.g., by indicating which claims are "empirically supported" vs. "theoretically informed"). This would increase the transparency and impact of your framework.

Also, given that many readers may not have a background in psychology, a slightly more detailed and accessible introduction to the two models would be helpful. Briefly defining the key constructs (autonomy, competence, relatedness; job demands vs. job resources) and illustrating them with

examples from medical education would make the article more approachable to faculty and administrators.

Some tips are presented with rich, concrete examples, while others are more general. Adding a few more practical illustrations where the recommendations are brief would improve balance and ensure that all tips are equally actionable.

Also, while most tips apply broadly, Tip 10 (on inclusion and belonging) seems oriented mainly to undergraduate medical education. I encourage you to broaden this recommendation to also include residency settings. Similarly, Tip 11 could highlight how faculty–learner partnerships extend beyond medical school. This would strengthen the applicability of your framework across the entire continuum of training.

Finally, your manuscript rightly highlights the importance of reducing excessive workload and administrative burden. This point could be further reinforced by engaging with empirical studies on staffing adequacy within the JD-R framework. For example, recent large-scale evidence from public healthcare organizations shows how both perceived and objective staffing needs directly affect workload sustainability and job satisfaction, and how resources such as leadership, training and adequate equipment can buffer these effects (<https://doi.org/10.1108/MD-07-2024-1718>). Incorporating insights from this type of research would provide additional empirical grounding to your recommendations (especially Tips 5 and 6) and underline the systemic importance of HRM practices alongside educational reforms.

A few sentences could be simplified to avoid ambiguity, as already stated by previous reviewer.

To conclude, this is a highly valuable and well-written manuscript. The above revisions are intended to strengthen its clarity, accessibility, and empirical support, thereby maximizing its contribution to the field. I strongly support publication once these points have been addressed.

Sincerely,
Luca Pirrotta

References

1. Pirrotta L, Cantarelli P, Belle N: Exploring the role of staffing needs in JD-R theory: evidence from public healthcare organizations. *Management Decision*. 2025; **63** (13): 282-301 [Publisher Full Text](#)

Is the topic of the practical tips discussed accurately in the context of the current literature?
Yes

Are all factual statements correct and adequately supported by citations?
Yes

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?
Partly

If evidence from practice is presented, are all the underlying source data available to ensure

full reproducibility?

Not applicable

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Healthcare Management, HRM, Employees' Wellbeing, Organizational Behaviour

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 27 Oct 2025

Adam Neufeld

I am deeply grateful to the reviewer for their thoughtful and generous evaluation of the manuscript. I greatly appreciate the recognition of its structure, clarity of purpose, and potential contribution to the field. The reviewer's constructive feedback has been invaluable in refining the paper's accessibility, empirical grounding, and practical impact. Below, I outline how each of the suggested revisions has been incorporated.

1. Clarifying empirical vs. theoretical foundations

I fully agreed with the reviewer's observation that readers would benefit from a clearer distinction between empirically supported recommendations and those primarily grounded in theory. The revised manuscript now explicitly differentiates these throughout the text. Within the twelve tips and the theory sections, I have clarified when claims are *empirically supported* (e.g., through multi-site studies, systematic reviews, or quantitative evidence) versus *theoretically informed* (e.g., directly derived from SDT or JD-R principles). This change enhances transparency and allows readers to better appreciate the strength and source of each recommendation.

2. Enhancing accessibility and defining key constructs

As recommended, I have expanded and simplified the introductory explanations of both **Self-Determination Theory (SDT)** and the **Job Demands-Resources (JD-R)** model. These sections now include clearer definitions of autonomy, competence, and relatedness, as well as the distinctions between job demands and job resources, challenge versus hindrance demands, and need satisfaction versus need frustration. Each construct is illustrated with concrete examples from medical education, making the framework more accessible for readers without a psychology background—especially faculty and administrators.

3. Balancing theoretical and practical depth across tips

I have reviewed all twelve tips to ensure that each includes both theoretical grounding and concrete, actionable examples. In particular, Tips 4, 7, and 9 were enriched with specific, contextually relevant illustrations drawn from applied practice

and empirical literature. This creates a more even distribution of depth and makes each tip equally actionable for educators and institutional leaders.

4. **Broadening applicability across the continuum of training**

In response to the reviewer's excellent suggestion, I have revised **Tip 10** ("Deliver Feedback That Builds Competence and Agency") and **Tip 11** ("Foster Belonging Through Inclusion and Psychological Safety") to ensure they are explicitly applicable to postgraduate (residency) as well as undergraduate training. Each now includes references and examples relevant to residency environments, reinforcing the framework's applicability across the full continuum of medical education.

5. **Integrating empirical evidence on staffing and workload**

I appreciate the reviewer's insightful recommendation to strengthen the empirical basis of **Tips 5 and 6** by engaging with research on staffing adequacy and workload sustainability. These sections now explicitly reference recent large-scale studies examining how staffing resources, leadership, and infrastructure buffer the impact of excessive workload and administrative burden within the JD-R framework. I have also integrated the reviewer's cited work (Pirrotta et al., 2024) to highlight the systemic importance of human resource management and organizational design alongside educational reform.

6. **Improving clarity and readability**

Consistent with the feedback from both reviewers, I undertook a careful stylistic review to simplify and clarify complex sentences throughout the manuscript. Ambiguous phrasing has been refined to ensure that key concepts are accessible and unambiguous on first read. These revisions improve flow and comprehension while preserving scholarly precision.

Once again, I sincerely thank the reviewer for their detailed and constructive feedback. Their comments have greatly enhanced the clarity, accessibility, and scholarly rigor of the manuscript, and I am confident that the revisions have strengthened its contribution to advancing systems-level wellness reform in medical education.

Competing Interests: No competing interests were disclosed.

Reviewer Report 13 May 2025

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Thank you for the opportunity to review this paper. I am thrilled to see the application of JDR and SDT in the one paper to systemic issues facing medical trainee wellbeing and burnout; this represents a very significant contribution to the literature and I think this could easily become a seminal paper. I would like to thank the author for writing on such an important topic.

I think the structure of the article is excellent; the use of JDR to structure the tips and then weaving SDT through the tips themselves makes for a very approachable read. I am also very pleased to see the inclusion not only of frustration of BPN but also how to enhance BPN; this dual focus on ill- and well-being is fantastic and just what the literature needs.

One area that could be improved is linkages to literature. It isn't always clear what aspect of a claim the citations are supporting. I understand this will increase the wordiness of the piece, but I think it's important that the evidence is more clearly described so the reader understands how recommendations are evidence-based vs theory-informed.

I have a good working knowledge of both SDT and JDR, but I think it would be worthwhile to provide some more detail about both of these models. I think this is necessary given the intended audience would presumably be medical faculty and program administrators, who may not have the same background in this psychological literature.

There are a few phrases that are difficult to interpret on first read, for example:

1. "medical education must prioritize reforms that reduce job demands that frustrate basic psychological needs" - the double 'that' in this sentence requires a bit of mental gymnastics to interpret

2. "Medical curricula often impose rigid, one-size-fits-all frameworks that limit learners' autonomy, which is essential for intrinsic motivation and well-being" - the 'which' here makes it sound on first read that a rigid framework is essential for intrinsic motivation

I'd recommend the phrasing using in the article to make these points clearer, perhaps some wording changes or dividing ideas into multiple sentences to maximise clarity. The ideas being presented are excellent, but they are let down by the wordsmithing.

Regarding tip 10, up until now I've seen how all the tips could be applied throughout medical education (i.e., including residency), but tip 10 exclusively talks about medical school. I would encourage the author to consider whether tip 10 could also be applied to residency settings (which I think it could) and provide some guidance in this respect. This would help maximise the paper's applicability to the full continuum of medical education. This is also the case, but to a lesser extent, for tip 11.

Is the topic of the practical tips discussed accurately in the context of the current literature

Yes

Are all factual statements correct and adequately supported by citations?

Yes

Are arguments sufficiently supported by evidence from the published literature and/or the authors' practice?

Partly

If evidence from practice is presented, are all the underlying source data available to ensure full reproducibility?

Not applicable

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Medical education, medical trainee burnout and wellbeing, clinical psychology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 25 Jun 2025

Adam Neufeld

Dear Dr. Prentice, Thank you very much for your thoughtful and constructive feedback. I greatly appreciate your support for the paper and your recognition of its potential contribution to the literature on systemic wellness reform in medical education. As I prepare the manuscript for its second review, I plan to implement several revisions that address your suggestions:

- 1. Enhance clarity of theoretical concepts:** I will add concise, accessible overviews of Self-Determination Theory and the Job Demands-Resources model so that readers—regardless of their psychology background—can fully engage with the ideas presented.
- 2. Improve citation transparency:** I will clarify the relationship between citations and claims throughout the paper, noting how each reference supports the point being made and distinguishing theory-informed recommendations from those with direct empirical backing.
- 3. Refine language for clarity:** Ambiguous or complex phrases will be revised for smoother readability and clearer interpretation, particularly where prior wording may have obscured intent or meaning.
- 4. Broaden applicability to residency:** All tips, 10 and 11 in particular, will be expanded to show how strategies apply to residency training, ensuring relevance across the continuum of medical education.

I believe these planned changes will strengthen the manuscript's clarity, accessibility, and practical value for medical educators and institutional leaders. Thank you again for your

generous engagement and for helping to shape this work. Sincerely, Adam Neufeld

Competing Interests: No competing interests were disclosed.

Author Response 27 Oct 2025

Adam Neufeld

I would like to sincerely thank the reviewer for their thoughtful and encouraging feedback. I am deeply grateful for the generous appraisal of the paper's structure, theoretical framing, and contribution to the literature. The reviewer's comments have strengthened the manuscript considerably. Below, I summarize how each of the key points raised has been addressed in the revised version.

1. Clarifying evidence and theory linkages

I fully agreed with the reviewer's observation that it was not always clear which claims were evidence-based versus theory-informed. In the revised manuscript, I have explicitly identified the nature of each assertion, clarifying where recommendations draw from empirical findings (e.g., large-scale, multi-site, or systematic reviews) and where they are grounded in SDT or JD-R theory. I have expanded several evidence summaries within the tips to explicitly state the study context and outcomes (e.g., in Tips 1–6 and 8–10), and revised the introduction and theory sections to orient readers to how these frameworks inform practical recommendations.

2. Expanding explanation of SDT and JD-R for non-specialist readers

Recognizing that many readers may not have prior familiarity with these frameworks, I have enhanced both the **SDT** and **JD-R** sections to provide more accessible, applied explanations. These now include clearer definitions of key constructs (e.g., basic psychological needs, challenge vs. hindrance demands, dual-process pathways), practical examples from medical education, and brief summaries of supporting empirical evidence. The revisions ensure that faculty, administrators, and educators new to motivational theory can readily grasp how each framework functions and why their integration is valuable.

3. Improving clarity and readability of complex sentences

I carefully reviewed the manuscript to address the reviewer's helpful examples of ambiguous phrasing. Sentences such as *"medical education must prioritize reforms that reduce job demands that frustrate basic psychological needs"* and *"Medical curricula often impose rigid, one-size-fits-all frameworks that limit learners' autonomy, which is essential for intrinsic motivation and well-being"* were rewritten for clarity and smoother syntax. Throughout the paper, multi-clause sentences were simplified or divided to improve flow and readability. These edits collectively make the paper more accessible without compromising scholarly precision.

4. Ensuring applicability across the continuum of medical education

I have revised **Tip 10** ("Deliver Feedback That Builds Competence and Agency") to explicitly include examples and language relevant to residency and postgraduate training, emphasizing its applicability beyond undergraduate settings. **Tip 11** ("Foster Belonging Through Inclusion and Psychological Safety") was similarly adjusted to broaden its scope across the continuum. These refinements align with the reviewer's valuable suggestion to enhance the paper's relevance for the entire spectrum of

medical education.

5. General stylistic refinements and consistency

Beyond these major revisions, I also undertook a comprehensive line edit to improve consistency of tone, flow, and theoretical integration throughout. The updated manuscript maintains parallel structure across the twelve tips and ensures alignment between the introduction, theory sections, and conclusion.

Once again, I wish to thank the reviewer for their generous recognition of the paper's potential and for their constructive recommendations, which have greatly improved its clarity, rigour, and impact.

Competing Interests: No competing interests were disclosed.