Professional identity formation: linking meaning to well-being

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Abstract
Trainee distress and burnout continue to be serious concerns for educational programs in medicine, prompting the implementation of numerous interventions. Although an expansive body of literature suggests that the experience of meaning at work is critical to professional wellbeing, relatively little attention has been paid to how this might be leveraged in the educational milieu. We propose that professional identity formation (PIF), the process by which trainees come to not only attain competence, but additionally to “think, act and feel” like physicians, affords us a unique opportunity to ground trainees in the meaningfulness of their work. Using the widely accepted tri-partite model of meaning, we outline how this process can contribute to wellbeing. We suggest strategies to optimize the influence of PIF on wellbeing, offering curricular suggestions, as well as ideas regarding the respective roles of communities of practice, teachers, and formative educational experiences. Collectively, these encourage trainees to act as intentional agents in the making of their novel professional selves, anchoring them to the meaningfulness of their work, and supporting their short and long-term wellbeing.

Keywords Meaning · Medical education · Professional identity formation · Well-being

The concerning prevalence of distress and burnout among medical trainees is well-established, with rates of anxiety, depression, and suicide exceeding those of the general public, and appearing to peak during residency (Dyrbye et al., 2014; Mata et al., 2015; Ripp et al., 2011; Shanafelt et al., 2002; Waguih et al., 2009). The toll on trainees, who are in formative stages of their lives and careers, is significant, as are the impacts on patient care. Indeed, compromised trainee wellbeing has been associated with reduced empathy, poorer quality of care, and increased medical error rates (Dewa et al., 2014; Shanafelt et al., 2002; West et al., 2006, 2009).

The various factors postulated to contribute to this unfortunate trend can be alternately categorized as existential or circumstantial in nature (Abedini et al., 2018). Existential
factors relate to a learner’s subjective experience of the stresses inherent to training, such as concerns about competence, role clarity, and connection (Abedini et al., 2018). In contrast, circumstantial factors relate to a learner’s environmental context, including challenges such as long work hours (Barrack et al., 2006), sleep deprivation (Perry & Osborne, 2003), relationship stressors (Koran & Litt, 1988), financial burdens (Dyrbye et al., 2009), and more recently, the COVID-19 pandemic (Kannampallil et al., 2020).

Educational programs have made ardent efforts to address both categories of risk, implementing interventions that buttress the individual trainee (through practices such as mindfulness or self-reflection (Bar-Sela et al., 2012; Burford, 2012; Clandinin & Cave, 2011; Kim et al., 2018; Levine et al., 2008; Lutz et al., 2013; Moir et al., 2016; Runyan et al., 2016; Satterfield & Becerra, 2010; Stark et al., 2006)], as well as those that focus on broader, systemic variables (e.g., duty hours, peer supports, etc.) (Awa et al., 2010; Regehr et al., 2014).

Interestingly, in recent years, there has been an increasing call to shift efforts from the former to the latter, and to effectively transfer “our gaze from the burned out physician to the resilient health care organization” (Panagopoulou & Montgomery, 2019). This is primarily motivated by evidence that interventions focusing on individual physicians appear less effective in the medium and long term than organization-directed approaches (Panagioti et al., 2017).

While a macroscopic approach is undoubtedly critical in supporting learner wellbeing, some parallel attention to the individual, subjective experience of medical training likely remains necessary. This is especially true given our increasing understanding of the relationship between the experience of meaning at work and wellbeing (Ben-Itzhak et al., 2015; Borritz et al., 2005; Depner et al., 2021; Hafler et al., 2017; McMurray et al., 1997; Messias et al., 2021; Shanafelt et al., 2009; Tei et al., 2015).

The construct of “meaning in life” has been a central concern for most of human history, preoccupying a variety of religious and philosophical traditions for millennia (Hadot & Davidson, 1995; Smith, 1991). In the time since several clinical psychology forebears recognized its fundamental contribution to wellbeing (Frankl, 1959; Jung, 1954), rigorous and innovative scholarship has demonstrated the numerous benefits of meaning. For example, self-reports of meaning in life are associated with higher quality of life (Krause, 2007), improved self-reported health (Steger & Kashdan, 2009), decreased mortality (Boyle et al., 2009; Krause, 2009), slower age-related cognitive decline (Boyle et al., 2012), and lower incidence of several psychological disorders, including suicidal ideation (Heisel & Flett, 2004; Mascaro & Rosen, 2005; Owens et al., 2009; Steger & Kashdan, 2009). Similar positive effects emerge in the organizational literature as well, where meaningful work is associated with higher job satisfaction, work engagement and citizenship behaviours (Duchon & Plowman, 2005; Hassan et al., 2016; Kazemipour & Mohd Amin, 2012; Littman-Ovadia & Steger, 2010).

Despite this continually expanding body of evidence, there has been relatively little attention paid in medical education circles to how we might best leverage the experience of meaning in the service of learner wellbeing. We hope to argue that the process of professional identity formation affords us the ideal opportunity to accomplish this.

Professional identity refers to “a representation of self, achieved in stages over time, during which the characteristics, values, and norms of the medical profession are internalized, resulting in an individual thinking, acting, and feeling like a physician” (Creuss et al., 2014). The formation of such an identity is not a passive, linear process aimed at encouraging mindless conformity. Rather, it is active and iterative, and invites trainees to uniquely negotiate and resolve tensions between their diverse personal (and often
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Pre-existing professional identities and the accepted standards of the profession (Creuss et al., 2014; Frost & Regehr, 2013a; Schrewe & Frost, 2012). The ultimate ideal result of this endeavour—a novel, authentic and well-integrated self—has been argued to be the paramount goal of medical education. And as it emphasizes the shift from simply “doing the work of a physician” to “being a physician” (Jarvis-Selinger et al., 2012), it provides a unique way to ground trainees in the meaningfulness of their work, potentially supporting their more general wellbeing.

Professional identity formation (PIF), meaning, and wellness

The formation of a professional identity that embraces and upholds the core values of medicine has long been argued to be critical to the training of the competent, humane physician (Wald et al., 2015). We agree with recent suggestions that the formation of such a professional identity additionally supports physician resilience and wellbeing (Chandran et al., 2019; Cullum et al., 2020; Monrouxe, 2010; Mavor et al. 2014).

We posit that this is because a well-developed and adaptive professional identity sensitizes trainees to the meaning of their work and education. It better positions them to realize and value the significance of their efforts, and renders their challenges worthwhile and justifiable. It also helps them focus on, and potentially even celebrate, their purpose as physicians.

In the following sections, we explore the relationships between PIF and wellness using the well-established tri-partite model of meaning (George & Park, 2016; Heintzelman & King, 2014; King & Hicks, 2021; Martela & Steger, 2016). This model, supported by extensive empirical evidence, conceptualizes the experience of meaning as comprised of three distinct subconstructs: (1) coherence, (2) purpose, and (3) significance, further defined below.

Coherence

Coherence refers to the perception of one’s life as understandable, structured and rational (George & Park, 2016). A higher degree of coherence signifies that one’s experiences can be clearly perceived as fitting together and making sense. Coherence is considered important in a variety of bodies of literature, including self-verification theory (Swann et al., 2012), narrative identity models (McAdams et al., 2008; McLean, 2008), cognitive consistency approaches (Gawronski, 2012), and uncertainty management perspectives (Hirsh et al., 2012). Importantly, all demonstrate a powerful relationship between coherence and wellbeing (George & Park, 2016).

The process of professional identity formation inherently supports trainee experiences of coherence. This is because when undertaken successfully, it allows individuals to amalgamate their reconstructed past, perceived present, and imagined future into a single comprehensible structure (Monrouxe, 2010). This provides a greater sense of clarity as trainees navigate their lives (Gawronski & Strack, 2012; Proulx & Inzlicht, 2012), minimizes uncertainty on a day-to-day basis (Bos, 2009; Hirsh et al., 2012), and allows them to better manage stressors that may arise (Park, 2010).

In contrast, challenges to PIF compromise coherence, and consequently, wellbeing. An ill-formed professional identity, for example, will hinder a trainee’s ability to contextualize their work within their larger, overarching life narrative. Various identity components,
including personal ones, will remain in a relatively fragmented state, leading to strain about conflicting priorities (Helmich et al., 2012; Monrouxe, 2010). Work will be viewed as distinct and dissociable from the rest of life, belying the harmful idea that joy and self-care are only possible outside the work environment, rather than within it (McKenna et al., 2016).

### Purpose

Purpose refers to “a sense of core goals, direction in life, and enthusiasm regarding the future” (George & Park, 2013). Living with purpose implies having a having a clear sense of the valued ends to which one is striving, and to be highly committed to these ends (George & Park, 2016). Interestingly, a variety of improved health outcomes are associated with higher levels of purpose, including increased self-esteem and positive emotion (Kashdan & McKnight, 2013), improved sleep patterns (Kim et al., 2015), higher rates of physical activity (Hooker & Masters, 2016), greater use of preventive health care services (Kim et al., 2014), and even reduced rates of stroke and dementia in older persons (Boyle et al., 2012).

During medical training, finding (and re-finding) one’s purpose is perhaps ideally accomplished by the iterative process of professional identity formation. Indeed, the very goal of PIF is to orient a learner towards medicine’s highest ideals, inviting them to partake of the profession’s collective commitment to these ideals. This is expected to naturally lead to positive emotions (Carver & Scheier, 1998), as well as to enhanced adaptability (as those with purpose appear better able to adjust lower-level goals when necessary) (Carver & Scheier, 1998).

Such an effect has begun to bear out in the literature on trainee wellbeing. For instance, one study found that resilience among residents appears rooted in “the resident’s calling to the work of medicine,” and that the drive to overcome obstacles appears to emerge at least in part from aspiration to professional ideals (Winkel et al., 2018). Career purpose similarly emerged as the factor most strongly associated with physician happiness in a large survey on physician well-being (Tak et al., 2017).

### Significance

Significance refers to the degree to which individuals feel that their existence matters and is of import and value (George & Park, 2016; Martela & Steger, 2016). Although there has been comparatively less empirical literature linking a higher feeling of significance to improved wellbeing, this is nonetheless believed to be the case (George & Park, 2016). This may be due to the ability of one’s sense of significance to lower general existential anxiety (Greenberg et al., 2008) and promote equanimity in the face of various threats (Alicke & Sedikides, 2009).

Professional identity formation supports significance in a number of ways, primarily by nurturing connectedness and relationality (McKenna et al., 2016). As trainees are professionally socialized and come increasingly to identify with the practice of medicine, they are essentially initiated into a novel culture, including its language, hierarchies, and often-implicit expectations (Lempp et al., 2009; Monrouxe, 2010). This leads to them moving from peripheral to fulsome participation in a community or communities of practice, and to experiencing a sense of belonging and mattering (Bar-Sela et al., 2012). In keeping with this idea, Winkel et al. (2018) found that “personal connections to peers and mentors, as well as to patients and the work, helped buffer the stress and conflicts that present”. In
contrast, a trainee whose professional identity has not been fully developed from a relational/communal perspective may feel alienated from their professional community, missing the various important advantages of group membership such as peer support and social learning.

Supporting wellness through professional identity formation

PIF should not simply function as a means to the end of making competent, effective physicians. Rather, it is a critical contributor to the making of physicians per se. That is, in order to develop and support the very “being” of trainees, the process of PIF has to be successfully navigated, and its eventual product, adaptive and resilient. As discussed above, this will anchor trainees to the meaning and meaningfulness of their journeys, encouraging them to benefit from the coherence of their roles and work, as well as the sustaining awareness of both their purpose and significance. As educators, it therefore behooves us to exploit all the strategies at our disposal in support of this endeavor.

Curricular initiatives

To maximize the contribution of PIF to trainee wellbeing, professional identity should ideally be explicitly addressed in dedicated pedagogical spaces (Chandran et al., 2019; Clandinin & Cave, 2008). Such spaces can provide opportunities for trainees to consciously grapple with the transformations they are undertaking, as well as the attendant rewards and challenges, increasing the likelihood that their identities will be coherent and explicitly linked to their professional purpose. Factors that appear to contribute to success include the supportiveness of the learning environment (intellectual and emotional), the authenticity of the context, the availability of mentorship, and the free expression of opinions (Mann et al., 2009).

Some suggest the use of one-on-one conversations with faculty members who can articulate the mechanics of identity formation (with particular attention to the relevant competing discourses) (Frost & Regehr, 2013b). Others have argued for the benefits of the small-group format, which, consistent with the literature on self-assessment (Eva & Regehr, 2008), may allow for more accurate reflection through the incorporation of multiple perspectives. The group format may also lend itself particularly well to engagement with the more pernicious aspects of the hidden curriculum and their deleterious effects on physician wellbeing (Billings et al., 2011; Hafferty, 1998; Holmes et al., 2015). Of note, it may also contribute to a sense of significance in that trainees may develop a sense of belonging in participating in collective activities with peers.

Curricula that promote self-reflection and group reflection seem particularly effective (Holmes et al., 2015), although appropriate guidance and supervision appear to be key (Mann et al., 2009). This is in keeping with current sociocultural frameworks of identity. For example, the narrative model posited by McLean et al. (2007) suggests that identity accrues incrementally over time as people recount stories about their experiences to others. Through repeated iterations, these stories “are processed, edited, reinterpreted, retold, and subjected to a range of social and discursive influences, as the story-teller gradually develops a broader and more integrative narrative identity” (McAdams & McLean, 2013), speaking again to the factors of coherence and purpose. For this reason, educational innovations better suited to supporting this kind
of iterative and discursive process (i.e., those involving narrative techniques) should likely be given particular priority in teaching about PIF and its impacts on trainee wellbeing.

Community

Connection to others has been described as key to fostering resilience in medical education (McKenna et al., 2016). McKenna et al. (2016) argue that while a sense of belonging is situated lower in Maslow’s (1943) hierarchy of needs than is self-actualization, medical education commits the error of privileging the latter over the former. The concept of medicine as a community of practice may help remedy this, particularly through its effect on PIF. A community of practice (Lave & Wenger, 1991) is defined as “a persistent, sustaining social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise” (Barab et al., 2002). It provides the contextual scaffold within which PIF transpires, transitioning the idea of “work” from a series of tasks to be completed or an environment in which one is temporarily situated, to a profession—a group of mutually supportive, similarly oriented individuals a trainee is striving to join. Such a conceptualization naturally dovetails with the tripartite factors of significance and purpose, granting individuals a sense of belonging and mattering, while anchoring them to the goals and values of their work.

Various steps can be taken to leverage the sustaining effects of such communities. Programs may consider the simple act of providing learners with protected time and space to assemble in the absence of faculty members. This encourages the organic development of authentic relationships which can buffer many of the challenges of training (McKenna et al., 2016). More generally, training environments can encourage learners to share parts of themselves and their personal histories (as they feel comfortable), in an effort to support genuine connection. When possible, time working with electronic medical records can be de-emphasized relative to time spent with patients and peers, as the latter is more likely to contribute to meaningful PIF and in turn, a sense of wellbeing. Peer mentorship programs have also been shown to be valuable, contributing to a sense of collegiality, and heightening social resilience (i.e., enabling trainees to withstand stress through mutual trust and bonding) (Pethrick et al., 2020).

Finally, Cruess et al. (2014) suggest that charting a learner’s progressive sense of belonging can be of utility. This can take the form of self-assessment, informed by the guidance of a mentor. Reinforcing feedback has been shown to lead to enhanced confidence and a feeling of professional group membership (Teunissen et al., 2011), while the identification of challenges, in contrast, can mobilize necessary supports (Bebeau et al., 2014).

It should be mentioned that there is a small, but developing literature on the medical education experiences of diverse learners, including those who identify with traditionally under-represented populations (race, gender, low SES, etc.) (Beagan, 2005; Brosnan et al., 2016; Le, 2017; Schreve & Martimianakis, 2022; Zhou, 2017). These studies suggest that there may be important, underappreciated influences on these trainees’ enculturation, sense of belonging, and ultimate PIF (Conway-Hicks & Groot, 2019; Wyatt et al., 2021). In support of these trainees and their eventual wellbeing, these influences certainly merit additional exploration.
**The teacher**

Physician educators play a crucial role in supporting their trainees’ PIF. Jarvis-Selinger et al. (2012) identify educators as a “critically important socializing agent, because medical students and residents continually watch their role models’ work habits, listen to their philosophies, and note their competencies and incompetencies”. Interactions with other team members, including nurses, other health care professionals and ancillary staff, similarly inform trainee identity development, although their impact may be more a consequence of how their roles and responsibilities contrast with those of trainees (Goldie, 2012). Regardless, the role of the teacher is so important and all-influencing that it may be viewed as impacting all of the tri-partite sub-factors, as teachers may be seen as (directly and indirectly) affecting the coherence of their trainees’ professional identities, as well as their sense of both purpose and significance.

It should be noted that the effort to support PIF requires sensitivity on the part of educators to the natural tensions between coaching and competence (Sawatsky et al., 2020). The move to competency-based medical education has encouraged the “dual purposing of assessment” (Richardson et al., 2021)—“assessment of learning” as well as “assessment for learning” (Lockyer et al., 2017; Watling & Ginsburg, 2019). The former approach is based on a fixed mindset of education, in which attributes and abilities are viewed as largely unchangeable, and performance is evaluated relative to a set of pre-specified outcomes (Dweck, 2016; Hong et al., 1999). Understandably, in this framework, trainees are compelled to conceal deficiencies in order to present the most confident, capable personae possible. In contrast, the latter approach is based on a growth mindset, privileging ongoing learning, and coaching along a developmental trajectory (Dweck, 2016; Hong et al., 1999). This encourages learners to reflect on and disclose failures and vulnerabilities as opportunities for professional improvement, and is therefore much better suited to nurturing trainee growth and evolution.

Indeed, faculty-guided discussions about identify formation can help transform challenging experiences into valuable opportunities for professional growth (Creuss et al., 2014). Such discussions also allow faculty to share their own professional developmental journey, as well as to attenuate the damaging effects of the hidden curriculum (Gofton & Regehr, 2006).

**Formative experiences**

The evolution of trainees from laypersons to practicing physicians is not a smooth and gradual process, but rather, one punctuated by abrupt and often dramatic adjustments. These adjustments are provoked by events conceived variously as crises (Piaget & Inhelder, 1969), sentinel emotional events (Bynum et al., 2019), disorienting dilemmas (Mezirow, 2000) or formative experiences (Murinson et al., 2010); examples include responding to the title of “doctor” for the first time, dealing with an unexpected patient death, and making a major diagnosis (or failing to). In all these situations, the learner experiences conflict between their current self-representation and the novel circumstances in which they find themselves. They are compelled to re-evaluate their previous beliefs and perspectives, and if successful, forge a new coherent identity incorporating the novel experience (Mezirow, 2000; Piaget & Inhelder, 1969).
One study found that learners may not be adept at identifying and reflecting on their own behaviours (Holmes et al., 2018). There are several possible reasons for this, including the subtlety of certain situations, or the potential reluctance of learners to implicate themselves as unprofessional (Holmes et al., 2018).

Generally, however, sentinel events represent times of increased vulnerability for trainees during which they can experience significant personal upheaval and uncertainty (Jarvis-Selinger et al., 2012). However, they can also provide unique opportunities for professional identity growth, and indeed, can be intentionally leveraged to do so. Initiatives that capitalize on this idea have been shown to support both PIF as well as trainee wellness (Murinson et al., 2010), confirming that when well-managed, sentinel events can function as transformative triggers and lead to the formation of resilient professional identity, anchoring trainees to their professional purpose, and supporting their well-being.

The systemic context

Attempts to improve trainee well-being through adaptive professional identity formation (or through any other means) would be incomplete without due attention to the staggering systemic factors at play (Panagioti et al., 2017; Panagopoulou & Montgomery, 2019). Health care systems issues such as staffing shortages, precarious reimbursements, time-consuming and complex electronic health records, increased clerical burden, and the relentless pressure to meet “quality” and “satisfaction” metrics abound (Shanafelt & Noseworthy, 2017). Similarly, cultural challenges within both the medical profession and educational programs are significant, including long-held attitudes about the tensions between altruism and self-care (Sklar, 2016), as well as ideas about what constitutes the ideal physician (Neilson, 2020; Schrewe & Martimianakis, 2022). This is to say nothing of the stresses inherent to training itself, with rapidly advancing levels of responsibility in the context of limited experience, and the constant pressure to optimize one’s evaluation outcomes and career prospects (LaDonna et al., 2017). We join in the call to address these systemic, contextual challenges, acknowledging that interventions such as the ones we propose are insufficient in isolation (Panagopoulou & Montgomery, 2019; Shanafelt & Noseworthy, 2017; Sklar, 2016). It is, however, perhaps noting that most, if not all, the factors mentioned above either directly or indirectly impact professional identity, underscoring the need for explicit educational attention to PIF in support of trainee well-being.

Closing thoughts

We have proposed that professional identity formation enhances trainee experiences of meaning, and in so doing, supports their more general wellbeing. We also discussed some of the ways this process may be optimized in a medical educational context. As above, and importantly, we acknowledge that PIF, no matter how well-navigated, will not render trainees immune to the systemic challenges facing the profession. Nor will it inure them to the emotional difficulties inherent to medical work—the suffering, sadness and pain of patients, the sickness and frailty that escape the profession’s collective efforts. It likely attenuates the effect of these challenges, but it would be unreasonable and unrealistic to expect them to be altogether eradicated.
Rather, the process of PIF ideally, is an invitation for trainees to participate actively and intentionally in their own “making”. It allows them to exert agency over their transformation, grappling with it consciously and thoughtfully, with consideration for what they most ardently wish for their lives and careers. It is our belief that this ethos cannot help but increase the likelihood that the identities ultimately constructed will better serve and support their well-being.

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References

Abedini, N. C., Stack, S. W., Goodman, J. L., & Steinberg, K. P. (2018). “It’s Not Just Time Off”: A framework for understanding factors promoting recovery from burnout among internal medicine residents. Journal of Graduate Medical Education, 10(1), 26–32.

Alicke, M. D., & Sedikides, C. (2009). Self-enhancement and self-protection: What they are and what they do. European Review of Social Psychology, 20, 1–48.

Awa, W. L., Plaumann, M., & Walter, U. (2010). Burnout prevention: A review of intervention programs. Patient Education and Counseling, 78(2), 184–190.

Barab, S. A., Barnett, M., & Squire, A. (2002). Developing an empirical account of a community of practice: Characterizing the essential tensions. The Journal of the Learning Sciences, 11, 489–452.

Barrack, R. L., Miller, L. S., Sotile, W. M., Sotile, M. O., & Rubash, H. E. (2006). Effect of duty hour standards on burnout among orthopaedic surgery residents. Clinical Orthopaedics and Related Research, 449, 134–137.

Bar-Sela, G., Lulav-Grinwald, D., & Mitnik, I. (2012). “Balint group” meetings for oncology residents as a tool to improve communication skills and reduce burnout level. Journal of Cancer Education, 27, 786–789.

Beagan, B. L. (2005). Everyday classism in medical school: Experiencing marginality and resistance. Medical Education, 39(8), 777–784.

Bebeau, M. J., & Faber-Langendoen, K. (2014). Remediating lapses in professionalism. In A. Kalet & C. L. Chou (Eds.), Remediaing in medical education: A mid-course correction (pp. 103–127). Springer.

Ben-Itzhak, S., Dvash, J., Maor, M., Rosenberg, N., & Halpern, P. (2015). Sense of meaning as a predictor of burnout in emergency physicians in Israel: A national survey. Clinical and Experimental Emergency Medicine, 2(4), 217–225.

Billings, M. E., Lazarus, M. E., Wenrich, M., Curtis, J. R., & Engelberg, R. A. (2011). The effect of the hidden curriculum on resident burnout and cynicism. Journal of Graduate Medical Education, 3(4), 503–510.

Borritz, M., Bültmann, U., Rugulies, R., Christensen, K. B., Villadsen, E., & Kristensen, T. S. (2005). Psychosocial work characteristics as predictors for burnout: Findings from 3-year follow up of the PUMA Study. Journal of Occupational and Environmental Medicine, 47(10), 1015–1025.

Boyle, P. A., Barnes, L. L., Buchman, A. S., & Bennett, D. A. (2009). Purpose in life is associated with mortality among community-dwelling older persons. Psychosomatic Medicine, 71(5), 574–579.

Boyle, P. A., Buchman, A. S., Wilson, R. S., Yu, L., Schneider, J. A., & Bennett, D. A. (2012). Effect of purpose in life on the relation between Alzheimer disease pathologic changes on cognitive function in advanced age. Archives of General Psychiatry, 69(5), 499–505.

Brosnan, C., Southgate, E., Outram, S., Lemp, H., Wright, S., Saxby, T., Harris, G., Bennett, A., & Kelly, B. (2016). Experiences of medical students who are first in family to attend university. Medical Education, 50(8), 842–851.
Burford, B. (2012). Group processes in medical education: Learning from social identity theory. *Medical Education, 46*, 143–152.

Bynum, W. E., Artino, A. R., Jr., Uijtdehaage, S., Webb, A. M. B., & Varpio, L. (2019). Sentinel emotional events: The nature, triggers, and effects of shame experiences in medical residents. *Academic Medicine, 94*(1), 85–89.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge University.

Chandran, L., Iuli, R. J., Strano-Paul, L., & Post, S. G. (2019). Developing “a way of being”: Deliberate approaches to professional identity formation in medical education. *Academic Psychiatry, 43*(5), 521–527.

Clandinin, D. J., & Cave, M. T. (2008). Creating pedagogical spaces for developing doctor professional identity. *Medical Education, 42*(8), 765–770.

Clandinin, J. M. T., & Cave, A. (2011). Narrative reflective practice in medical education for residents: Composing shifting identities. *Advances in Medical Education and Practice, 2*, 1–7.

Conway-Hicks, S., & de Groot, J. M. (2019). Living in two worlds: Becoming and being a doctor among those who identify with “not from an advantaged background.” *Current Problems in Pediatric and Adolescent Health Care, 49*(4), 92–101.

Creuss, R. L., Creuss, S. R., Boudreau, J. D., Snell, L., & Steinert, Y. (2014). Reframing medical education to support professional identity formation. *Academic Medicine, 89*, 1446–1451.

Cullum, R. J., Shaughnessy, A., Mayat, N. Y., & Brown, M. E. (2020). Identity in lockdown: Supporting primary care professional identity development in the COVID-19 generation. *Education for Primary Care, 31*(4), 200–204.

Depner, R. M., Cook-Cottone, C. P., & Kim, S. (2021). Structural relationship between mindful self-care, meaning made, and palliative worker’s quality of life. *International Journal of Stress Management, 28*(1), 74–87.

Dewa, C. S., Loong, D., Bonato, S., Thanh, N. X., & Jacobs, P. (2014). How does burnout affect physician productivity? A systematic literature review. *BMC Health Services Research, 14*, 325.

Duchon, D., & Plowman, D. A. (2005). Nurturing the spirit at work: Impact on work unit performance. *The Leadership Quarterly, 16*, 807–833.

Dweck, C. (2016). *Mindset: The new psychology of success. (Updated version.)* Ballantine Books.

Dyrbye, L. N., Sloan, J. A., & Shanafelt, T. D. (2009). In response: Is there a correlation between high educational debt and suicidal ideation among medical students? *Annals of Internal Medicine, 150*, 285.

Dyrbye, L. N., West, C. P., Satele, D., Boone, S., Tan, L., Sloan, J., & Shanafel, T. D. (2014). Burnout among US medical students and early career physicians relative to the general population. *Academic Medicine, 89*, 443–451.

Eva, K. W., & Regehr, G. (2008). “I’ll never play professional football” and other fallacies of self-assessment. *The Journal of Continuing Education in the Health Professions, 28*(1), 14–19.

Frankl, V. (1959). *Man's search for meaning*. Washington Square Press. Original work published 1946.

Frost, H. D., & Regehr, G. (2013a). “I AM a doctor”: Negotiating the discourses of standardization and diversity in professional identity construction. *Academic Medicine, 88*(10), 1570.

Gawronski, B. (2012). Back to the future of dissonance theory: Cognitive consistency as a core motive. *Social Cognition, 30*, 652–668.

Gawronski, B., & Strack, F. (2012). *Cognitive consistency: A fundamental principle in social cognition*. Guilford Press.

George, L. S., & Park, C. L. (2013). Are meaning and purpose distinct? An examination of correlates and predictors. *The Journal of Positive Psychology, 8*, 365–375.

George, L. S., & Park, C. L. (2016). Meaning in life as comprehension, purpose and mattering: Toward integration and new research questions. *Review of General Psychology, 20*(3), 205–220.

Gofton, W., & Regehr, G. (2006). What we don’t know we are teaching: Unveiling the hidden curriculum. *Clinical Orthopaedics and Related Research, 449*, 20–27.

Goldie, J. (2012). The formation of professional identity in medical students: Considerations for educators. *Medical Teacher, 34*(9), e641–e648.

Greenberg, J., Solomon, S., & Arndt, J. (2008). A basic but uniquely human motivation: Terror management. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of motivation science*. Guilford Press.

Hadot, P., & Davidson, A. I. (1995). *Philosophy as a way of life: Spiritual exercises from Socrates to Foucault*. Blackwell Publishing.

Hafferty, F. W. (1998). Beyond curriculum reform: Confronting medicine’s hidden curriculum. *Academic Medicine, 73*(4), 403–407.

Hafler, J. P., Plews-Ogan, M., Rider, E. A., & Litzelman, D. K. (2017). How physicians draw satisfaction and overcome barriers in their practices: “It sustains me.” *Patient Education and Counseling, 100*(12), 2320–2330.
Hassan, M., Nadeem, A. B., & Akhter, A. (2016). Impact of workplace spirituality on job satisfaction: Mediating effect of trust. *Cognit Business & Management, 3*, 1189808.

Heintzelman, S. J., & King, L. (2014). (The feeling of) meaning-as-information. *Personality and Social Psychology Review, 18*, 153–167.

Heisel, M. J., & Flett, G. L. (2004). Purpose in life, satisfaction with life, and suicide ideation in a clinical sample. *Journal of Psychopathology and Behavioral Assessment, 26*, 127–135.

Helmich, E., Bolhuis, S., Dornan, T., Laan, R., & Koopmans, R. (2012). Entering medical practice for the very first time: Emotional talk, meaning and identity development. *Medical Education, 46*, 1074–1087.

Hirsh, J. B., Mar, R. A., & Peterson, J. B. (2012). Psychological entropy: A framework for understanding uncertainty-related anxiety. *Psychological Review, 119*, 304–320.

Holmes, C. L., Harris, I. B., Schwartz, A. J., & Regehr, G. (2015). Harnessing the hidden curriculum: A four-step approach to developing and reinforcing reflective competencies in medical clinical clerkship. *Advances in Health Sciences Education: Theory and Practice, 20*(5), 1355–1370.

Holmes, C. L., Hubinette, M. M., Maclure, M., Miller, H., Ting, D., Costello, G., Reed, M., & Regehr, G. (2018). Reflecting on what? The difficulty of noticing formative experiences in the moment. *Perspectives on Medical Education, 7*(6), 379–385.

Hong, Y., Chiu, C., Dweck, C. S., Lin, D.M.-S., & Wan, W. (1999). Implicit theories, attributions, and coping: A meaning system approach. *Journal of Personality and Social Psychology, 77*(3), 588–599.

Hooker, S. A., & Masters, K. S. (2016). Purpose in life is associated with physical activity measured by accelerometer. *Journal of Health Psychology, 21*(6), 962–971.

Jarvis-Selinger, S., Pratt, D. D., & Regehr, G. (2012). Competency is not enough: Integrating identity formation into the medical education discourse. *Academic Medicine, 87*, 1185–1191.

Jung, C. G. (1954). *The practice of psychotherapy*. Bollingen Foundation.

Kannampallil, T. G., Goss, C. W., Evanoff, B. A., Strickland, J. R., McAlister, R. P., & Duncan, J. (2020). Exposure to COVID-19 patients increases physician trainee stress and burnout. *PLoS ONE, 15*(8), e0237301.

Kashdan, T. B., & McKnight, P. E. (2013). Commitment to a purpose in life: An antidote to the suffering by individuals with social anxiety disorder. *Emotion, 13*(6), 1150–1159.

Kazemipour, F., & Mohd Amin, S. (2012). The impact of workplace spirituality dimensions on organizational citizenship behaviour among nurses with the mediating effect of affective organisational commitment. *Journal of Nursing Management, 20*(8), 1039–1048.

Kim, B., Jee, S., Lee, J., An, S., & Lee, S. M. (2018). Relationships between social support and student burnout: A meta-analytic approach. *Health, 34*(1), 127–134.

Kim, E. S., Hershner, S. D., & Strecher, V. J. (2015). Purpose in life and incidence of sleep disturbances. *Journal of Behavioral Medicine, 38*(3), 590–597.

Kim, E. S., Strecher, V. J., & Ryff, C. D. (2014). Purpose in life and use of preventive health care services. *Proceedings of the National Academy of Sciences, 111*(46), 16331–16336.

King, L. A., & Hicks, J. A. (2021). The science of meaning in life. *Annual Review of Psychology, 72*, 561–584.

Koran, L. M., & Litt, I. F. (1988). House staff well-being. *Western Journal of Medicine, 148*, 97–101.

Krause, N. (2007). Longitudinal study of social support and meaning in life. *Psychology and Aging, 22*(3), 456–469.

Krause, N. (2009). Meaning in life and mortality. *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 64*(4), 517–527.

LaDonna, K. A., Hatala, R., Lingard, L., Voyer, S., & Watling, C. (2017). Staging a performance: Learners’ perceptions about direct observation during residency. *Medical Education, 51*(5), 498–510.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Le, H. H. (2017). The socioeconomic diversity gap in medical education. *Academic Medicine, 92*(8), 1071.

Lempp, H. (2009). Medical-school culture. Pierre Bourdieu, and the theory of medical education: Thinking “rationally” about medical students and medical curricula. In C. Brosnan & B. S. Turners (Eds.), *Handbook of the sociology of medical education* (pp. 69–71). Routledge.

Levine, R. B., Kern, D. E., & Wright, S. M. (2008). The impact of prompted narrative writing during internship on reflective practice: A qualitative study. *Advances in Health Sciences Education, 13*, 723–733.

Littman-Ovadia, H., & Steger, M. (2010). Character strengths and well-being among volunteers and employees. *The Journal of Positive Psychology, 5*, 419–430.

Lockyer, J., Carraccio, C., Chan, M., Hart, D., Smee, S., Touchie, C., Holmboe, E. S., & Frank, J. R. (2017). Core principles of assessment in competency-based medical education. *Medical Teacher, 39*(6), 609.
Lutz, G., Scheffer, C., Edelhaeuser, F., Tauschel, D., & Neumann, M. (2013). A reflective practice intervention for professional development, reduced stress and improved patient care: A qualitative developmental evaluation. Patient Education and Counseling, 92, 337–345.

Mann, K., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. Advances in Health Sciences Education: Theory and Practice, 14(4), 595–621.

Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. The Journal of Positive Psychology, 11(5), 531–545.

Masarco, N., & Rosen, D. H. (2005). Existential meaning’s role in the enhancement of hope and prevention of depressive symptoms. Journal of Personality, 73(4), 985–1013.

Maslow, A. H. (1943). A theory of human motivation. Psychological Review, 50(4), 370–396.

Mata, D. A., Ramos, M. A., Bansal, N., Khan, R., Guilile, C., Di Angelantonio, E., & Sen, S. (2015). Prevalence of depression and depressive symptoms among resident physicians: A systematic review and meta-analysis. JAMA, 314(22), 2373–2383.

Mavor, K. I., McNeill, K. G., Anderson, K., Kerr, A., O’Reilly, E., & Platow, M. J. (2014). Beyond prevalence to process: The role of self and identity in medical student well-being. Medical Education, 48(4), 351–360.

McAdams, D. P. (2008). Personal narratives and life story. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), Handbook of personality: Theory and research (pp. 242–262). Guilford Press.

McAdams, D. P., & McLean, K. C. (2013). Narrative Identity. Current Directions in Psychological Science, 22(3), 233–238.

McKenna, K. M., Hashimoto, D. A., Maguire, M. S., & Bynum, W. E. (2016). The missing link: Connection is the key to resilience in medical education. Academic Medicine, 91, 1197–1199.

McLean, K. C. (2008). The emergence of narrative identity. Social and Personality Psychology Compass, 2, 1685–1702.

McLean, K. C., Pasupathi, M., & Pals, J. L. (2007). Selves creating stories creating selves: A process model of self-development. Personality and Social Psychology Review, 11, 262–278.

McMurray, J. E., Williams, E., Schwartz, M. D., Douglas, J., Van Kirk, J., Konrad, T. R., Gerrity, M., Bigby, J. A., & Linzer, M. (1997). SGIM Career Satisfaction Study Group. Physician job satisfaction: Developing a model using qualitative data. Journal of General Internal Medicine, 12(11), 711–714.

Messias, E., Flynn, V., Gathright, M., Thrush, C., Van Kirk, J., Konrad, T. R., Gerrity, M., Bigby, J. A., & Linzer, M. (2021). Loss of meaning at work associated with burnout risk in academic medicine. Southern Medical Journal, 114(3), 139–143.

Mezirow, J. (2000). Learning as transformation: Critical perspectives on a theory in progress. Jossey Bass.

Moir, F., Henning, M., Hassed, C., Moyes, S. A., & Elley, C. R. (2016). A peer support and mindfulness program to improve the mental health of medical students. Teaching and Learning in Medicine, 28, 293–302.

Monrouxe, L. V. (2010). Identity, identification and medical education: Why should we care? Medical Education, 44(1), 40–49.

Murinson, B. B., Klick, B., Haythornthwaite, J. A., Shochet, R., Levine, R. B., & Wright, S. M. (2010). Formative experiences of emerging physicians: Gauging the impact of events that occur during medical school. Academic Medicine, 85(8), 1331–1337.

Neilson, S. (2020). Ableism in the medical profession. CMAJ, 192(15), E411–E412.

Owens, G. P., Steger, M. F., Whitesell, A. A., & Herrera, C. J. (2009). Posttraumatic stress disorder, guilt, depression, and meaning in life among military veterans. Journal of Traumatic Stress, 22(6), 654–657.

Panagiotou, M., Panagopoulou, E., Bower, P., Lewith, G., Kontopantelis, E., Chew-Graham, C., Dawson, S., Van Marwijk, H., Geraghty, K., & Esmail, A. (2017). Controlled interventions to reduce burnout in medical practitioners: A systematic review and meta-analysis. JAMA Internal Medicine, 177(2), 195–205.

Panagopoulou, E., & Montgomery, A. (2019). From burnout to resilient practice: Is it a matter of the individual or the context? Medical Education, 53(2), 112–114.

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. Psychological Bulletin, 136, 257–301.

Perry, M. Y., & Osborne, W. E. (2003). Health and wellness in residents who matriculate into physician training programs. American Journal of Obstetrics and Gynecology, 189, 679–970.

Pethrick, H., Nowell, L., Paolucci, E. O., Lorenzetti, L., Jacobsen, M., Clancy, T., & Lorenzetti, D. L. (2020). Peer mentoring in medical residency education: A systematic review. Canadian Medical Education Journal, 11(6), e128–e137.

Piaget, J., & Inhelder, B. (1969). The psychology of the child. Basic Books.

Proulx, T., & Inzlicht, M. (2012). The five “A”s of meaning maintenance: Finding meaning in the theories of sense-making. Psychological Inquiry, 23, 317–335.
Regehr, C., Glancy, D., Pitts, A., & LeBlanc, V. R. (2014). Interventions to reduce the consequences of stress in physicians: A review and meta-analysis. *The Journal of Nervous and Mental Disease, 202*(5), 353–359.

Richardson, D., Kinnear, B., Hauer, K. E., Turner, T. L., Warm, E. J., Hall, A. K., Ross, S., Thoma, B., Melle, Van, ICBME Collaborators. (2021). Growth mindset in competency-based medical education. *Medical Teacher, 43*(7), 751–757.

Ripp, J., Babatsky, M., Fallar, R., Bazari, H., Bellini, L., Kapadia, C., Katz, J. T., Pecker, M., & Korenstein, D. (2011). The incidence and predictors of job burnout in first-year internal medicine residents: a five-institution study. *Academic Medicine, 86*, 1304–1310.

Runyan, C., Savageau, J. A., Potts, S., & Weinreb, L. (2016). Impact of a family medicine resident wellness curriculum: A feasibility study. *Medical Education Online, 21*, 30648.

Satterfield, J. M., & Becerra, C. (2010). Developmental challenges, stressors and coping in medical residents: A qualitative analysis of support groups. *Medical Education, 44*, 908–916.

Sawatsky, A. P., Huffman, B. M., & Hafferty, F. W. (2020). Coaching versus competency to facilitate professional identity formation. *Academic Medicine, 95*(10), 1511–1514.

Schrewe, B., & Martimianakis, M. A. (2022). Re-thinking “I”dentity in medical education: Genealogy and the possibilities of being and becoming. *Advances in Health Sciences Education: Theory and Practice.* https://doi.org/10.1007/s10459-022-10095-w

Shanafelt, T. D., Bradley, K. A., Wipf, J. E., & Back, A. L. (2002). Burnout and self-reported patient care in an internal medicine residency program. *Annals of Internal Medicine, 136*, 358–367.

Shanafelt, T. D., & Noseworthy, J. H. (2017). Executive leadership and physician well-being: Nine organizational strategies to promote engagement and reduce burnout. *Mayo Clinic Proceedings, 92*(1), 129–146.

Shanafelt, T. D., West, C. P., Sloan, J. A., Novotny, P. J., Poland, G. A., Menaker, R., Rummans, T. A., & Dyrbye, L. N. (2009). Career fit and burnout among academic faculty. *Archives of Internal Medicine, 169*(10), 990–995.

Sklar, D. P. (2016). Fostering student, resident, and faculty wellness to produce healthy doctors and a healthy population. *Academic Medicine, 91*(9), 1185–1188.

Smith, H. (1991). *The world’s religions.* Harper Collins.

Stark, P., Roberts, C., Newble, D., & Bax, N. (2006). Discovering professionalism through guided reflection. *Medical Teacher, 28*, e25-31.

Steger, M. F., & Kashdan, T. B. (2009). Depression and everyday social activity, belonging, and well-being. *Journal of Counseling Psychology, 56*(2), 289–300.

Swann, W. B., Jr., & Buhrmester, M. D. (2012). Self-verification: The search for coherence. In M. R. Leary & J. Tangney (Eds.), *Handbook of self and identity* (pp. 405–424). Guilford Press.

Tak, H. J., Curlin, F. A., & Yoon, J. D. (2017). Association of intrinsic motivating factors and markers of physician well-being: A national physician survey. *Journal of General Internal Medicine, 32*(7), 739–746.

Tei, S., Becker, C., Sugihara, G., Kawada, R., Fujino, J., Sozu, T., Murai, T., & Takahashi, H. (2015). Sense of meaning in work and risk of burnout among medical professionals. *Psychiatry and Clinical Neurosciences, 69*(2), 123–124.

Teunissen, P. W., & Wilkinson, T. J. (2011). Learning and teaching in workplaces. In T. Dornan, K. Mann, A. Scherpbier, & J. Spencer (Eds.), *Medical education: Theory and practice* (pp. 193–209). Churchill Livingstone.

Van den Bos, K. (2009). Making sense of life: The existential self trying to deal with personal uncertainty. *Psychological Inquiry, 20*, 197–217.

Waguih, W. I., Lederer, S., Mandili, C., Nikravesh, R., Seligman, L., Vasa, M., Ogunyemi, D., & Bernstein, C. A. (2009). Burnout during residency: A literature review. *Journal of Graduate Medical Education, 1*(2), 236–242.

Wald, H. S., Anthony, D., Hutchinson, T. A., Liben, S., Smilovitch, M., & Donato, A. A. (2015). Professional identity formation in medical education for humanistic, resilient physicians: Pedagogic strategies for bridging theory to practice. *Academic Medicine, 90*, 753–760.

Watling, C. J., & Ginsburg, S. (2019). Assessment, feedback and the alchemy of learning. *Medical Education, 53*(1), 76–85.

West, C. P., Huschka, M. M., & Novotny, P. J. (2006). Association of perceived medical errors with resident distress and empathy: A prospective longitudinal study. *JAMA, 296*(9), 1071–1078.

West, C. P., Tan, A. D., Habermann, T. M., Sloan, J. A., & Shanafelt, T. D. (2009). Association of resident fatigue and distress with perceived medical errors. *JAMA, 302*, 1294–1300.
Winkel, A. F., Honart, A. W., Robinson, A., Jones, A. A., & Squires, A. (2018). Thriving in scrubs: A qualitative study of resident resilience. *Reproductive Health, 15*, 1–53.

Wyatt, T. R., Rockich-Winston, N., White, D., & Taylor, T. R. (2021). “Changing the narrative”: A study on professional identity formation among Black/African American physicians in the U.S. *Advances in Health Sciences Education: Theory and Practice, 26*(1), 183–198.

Zhou, S. Y. (2017). Underprivilege and privilege. *JAMA, 318*, 705–706.

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