

Measuring Flourishing Among Internal Medicine and Psychiatry Residents

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ABSTRACT

Background Many residents experience burnout, prompting national attention to well-being; however, well-being is not merely the absence of burnout. A recently developed measure of flourishing may provide insight on this important topic.

Objective We investigated flourishing in a sample of medical residents.

Methods Internal medicine residents and psychiatry residents at 2 residency programs responded to a cross-sectional online survey (December 2017–February 2018), which focused on the Flourish Index (FI) and Secure Flourish Index (SFI). Both measures generate scores ranging from a low of 0 to a high of 10. Participants were queried about quality of life, burnout, work-life balance, empathic concern, and sociodemographic characteristics. Simple and multiple linear regressions were performed to examine the relationship between FI/SFI and other variables.

Results The response rate was 92% (92 of 101). Participants were found to have a mean FI score of 6.8 (SD = 1.6) and mean SFI score of 6.9 (SD = 1.6). Low quality of life, low work-life balance satisfaction, high emotional exhaustion, lower empathic concern, and having a pet were all significantly associated with lower FI scores ($R^2 = 0.59$; $F[14, 69] = 7.10$; $P < .0001$), indicating lesser flourishing, controlling for other variables. Similarly, low quality of life, high emotional exhaustion, lower empathic concern, and having a pet were all significantly associated with lower SFI scores ($R^2 = 0.55$; $F[14, 69] = 6.06$; $P < .0001$), controlling for other variables.

Conclusions In this sample, the flourishing indices were associated with well-being and burnout metrics.

Introduction

Health is more than simply the absence of disease; it also encompasses well-being in physical, mental, and social domains.¹ Medical and social science research studies are often concerned primarily with outcome measures such as disease remission, rather than outcomes that reflect a more holistic conception of health.² In an effort to capture meaningful health outcomes, VanderWeele developed a measure to assess human flourishing,² a long-standing conception of well-being that includes constructs such as happiness, meaning, and character.² VanderWeele's flourishing measure demonstrates validity across culturally diverse settings.^{3,4}

Opportunities and challenges abound during residency training, making it a time when characterizing and measuring trainees' flourishing is imperative. More than half of residents report burnout, characterized by depersonalization and emotional exhaustion.^{5,6} Such a high proportion of burnout in

medicine, at all levels from medical students to practicing physicians, somewhat limit the utility of the construct. Further, despite tremendous attention and interventions, burnout rates have not improved.⁷ Some propose that attention to and explicit codification of professional growth may be the antidote to burnout, particularly during residency training when there is ever-increasing responsibility, coupled with stress, long hours, less time for self-care, and limited autonomy.⁸

The Association of American Medical Colleges recognizes that improved measurements related to burnout and well-being may be necessary to help medical trainees.⁹ Of note, compared to the large number of published studies that measure burnout in medical education,^{10,11} relatively few focus on well-being.^{12,13} To date, no studies of medical trainees employ VanderWeele's flourishing measure. As such, we set out to pilot the flourishing measure in a sample of medical trainees. Beyond assessing the means and distributions for all trainees (as well as distinctive subsets), we intended to explore how the scale would relate to other measures that are commonly used when considering trainee well-being. We hypothesized that higher flourishing scores in trainees would

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Editor's Note: The online version of this article contains the survey used in the study.

correlate with higher quality of life, satisfaction with work-life balance, and empathic concern, as well as lower burnout.

Methods

Study Design and Subjects

All residents ($n = 101$) from 2 residency training programs were invited to participate: one program in internal medicine (Johns Hopkins Bayview Medical Center for all training years) and one in psychiatry (Johns Hopkins Bayview Medical Center for intern year and Johns Hopkins Hospital for subsequent training years). The invitation was sent to internal medicine residents by the assistant chiefs of service and to the psychiatry residents by a chief resident. Reminders were sent after 1 week and again after 2 weeks. Those who consented to participate were sent a link to complete the online survey hosted on Qualtrics (Provo, UT) between December 2017 and February 2018 (survey provided as online supplemental material). Upon completion of the study, participants were sent a \$10 Amazon gift card.

Survey Instrument

The survey focused on VanderWeele's flourishing measure, which concentrates on 6 domains: (1) happiness and life satisfaction; (2) mental and physical health; (3) meaning and purpose; (4) character and virtue; (5) close social relationships; and (6) financial and material stability.² The first 5 domains are considered ends in themselves, meaningful to pursue in their own right.² The sixth domain of "financial and material stability" constitutes a means to an end; it has instrumental value in achieving the first 5 domains.² The measure produces 2 scores: the Flourish Index (FI) and Secure Flourish Index (SFI).⁴ The FI consists of the average scores of 10 items (2 for each of the 5 domains), with responses ranging from 0 to 10 (higher responses indicate greater flourishing). The SFI is the average score of the items contained in the FI, plus an additional 2 questions assessing material and financial stability. The survey instrument also collected information using other measures that the investigators believed might be associated with flourishing.

Quality of Life: Quality of life was assessed by participant responses to the single item previously used in medical education research,¹⁴ "Which of the following best describes your overall quality of life?" on a Likert scale from 1 (as bad as it can be) to 5 (as good as it can be). Participants who responded with a

What was known and gap

There is limited exploration of well-being in graduate medical education, defined as more than the absence of burnout.

What is new

A cross-sectional survey of residents focusing on the Flourish Index and Secure Flourish Index to measure flourishing.

Limitations

Study was conducted in a single institution, limiting generalizability. Because this is a novel measure, there are not yet established thresholds or cut-offs for high or low flourishing.

Bottom line

The flourishing indices were associated with both well-being and burnout metrics.

2 or lower were considered to have low quality of life.¹⁴

Satisfaction With Work-Life Balance: Satisfaction with work-life balance was assessed by participant responses to the item previously used in medical education research,¹⁴ "How satisfied are you with the balance between your personal and professional life?" on a Likert scale from 1 (very dissatisfied) to 5 (very satisfied). Participants who responded with a 2 or lower were considered to have low satisfaction with work-life balance.¹⁴

Burnout: Symptoms of burnout were assessed with 2 single items modified from the Maslach Burnout Inventory (MBI).¹⁵ Participants were queried how often they experienced emotional exhaustion ("How often do you feel burned out from your work and studying?") and depersonalization ("How often do you feel you've become more callous toward people since you started medical school?") on a 7-point Likert scale from never to daily. Nearly identical questions have been used previously with medical residents and demonstrate strong correlations with the full-length MBI.^{14,16} High emotional exhaustion and high depersonalization were defined as experiencing symptoms at least once a week.¹⁴

Empathic Concern: Participants were given the 7-item empathic concern subscale from the Interpersonal Reactivity Index (IRI), in which participants rate each statement on a scale from 0 (does not describe me well) to 4 (describes me well).¹⁷ For example, "I often have tender, concerned feelings for people less fortunate than me."¹⁷ Responses are summed to create a total score ranging from 0 to 28. The IRI is widely used, and previous research has used the empathic concern subscale in samples of medical students and residents.¹⁸⁻²⁰

TABLE 1

Characteristics of the Psychiatry and Internal Medicine Resident Participants

Characteristics	Total Sample (N = 92)	Psychiatry Residents (n = 44)	Internal Medicine Residents (n = 48)	P Value ^{a,b}
Female, n (%)	53 (58)	24 (55)	29 (60)	.57
Age, mean (SD)	30.1 (3.0)	31.2 (2.8)	29.1 (2.8)	< .001
White (vs. non-white), n (%)	53 (58)	31 (70)	22 (46)	.011
Partnered (vs. not), n (%)	61 (66)	37 (84)	24 (50)	< .001
At least 1 child (vs. no children), n (%)	12 (13)	8 (18)	4 (8)	.16
Family nearby (vs. not), n (%)	35 (38)	16 (36)	19 (40)	.75
Lives alone (vs. not), n (%)	26 (28)	9 (20)	17 (35)	.11
Has a pet (vs. not), n (%)	26 (28)	19 (43)	7 (15)	.002
Introvert (vs. extrovert), n (%)	59 (64)	27 (61)	32 (67)	.60
Debt > median (\$135,000) (vs. ≤ median), n (%)	43 (47)	22 (41)	21 (44)	.46
Intern (vs. postgraduate year 2, 3, or 4), n (%)	31 (34)	9 (20)	22 (46)	.010
Low quality of life (vs. higher), n (%)	17 (18)	4 (9)	13 (27)	.030
Low satisfaction with work-life balance (vs. higher), n (%)	33 (36)	11 (25)	22 (46)	.045
High emotional exhaustion (vs. lower), n (%)	43 (47)	19 (43)	24 (50)	.58
High depersonalization (vs. lower), n (%)	30 (33)	13 (30)	17 (35)	.60
Empathic concern, mean (SD)	22.0 (4.4)	22.4 (4.6)	21.7 (4.3)	.42

^a Psychiatry and internal medicine residents were compared using Pearson χ^2 tests to compare proportions for categorical variables and simple linear regressions to compare means for continuous variables (age and empathic concern scores).

^b Bold P values are considered significant.

Sociodemographic Characteristics: Participants were asked about their program (internal medicine or psychiatry), year of residency, gender, age, race (categorized into self-identified white or non-white), relationship status, number of children, and education-related debt. Participants were asked if they lived alone, had a pet, had family nearby, and whether they considered themselves an introvert or an extrovert.

Study procedures were reviewed and approved by the Johns Hopkins Medicine Institutional Review Board.

Data Analysis

Our primary outcome measure was the FI and the secondary outcome was the SFI. Scale reliability for the FI and SFI were assessed using Cronbach's alpha. We calculated descriptive statistics of the measures and sociodemographic characteristics. We performed simple linear regression (SLR) of each measure and sociodemographic characteristic on the FI and SFI. Multiple linear regressions (MLR) were conducted on the FI and SFI; covariates were chosen based on significance in the SLR and a

priori hypotheses. As this was an exploratory analysis, multiple models were tested for each outcome (FI and SFI). MLR fit was assessed using Akaike's information criterion (AIC) values, and the model with the lowest AIC was selected as the preferred model.²¹ All analysis was performed in Stata/IC 15.1 for Windows (StataCorp LLC, College Station, TX).

Results

Of the 101 residents who were approached, 92 completed the survey (91% response rate), with 44 residents in psychiatry (48%) and 48 in internal medicine (52%). Sample demographics are presented in TABLE 1. The mean debt related to education was \$167,747 (SD = \$157,104).

Flourishing Measure

The mean FI was 6.8 (SD = 1.6), and the mean SFI was 6.9 (SD = 1.6; TABLE 2). Both the FI (10 items, $\alpha = 0.91$) and SFI (12 items, $\alpha = 0.89$) had good internal consistency (indicated by $\alpha > 0.7$).

TABLE 2

Mean and Standard Deviation of Flourishing Measure Items, Flourish Index, and Secure Flourish Index

Item	Domain	Mean (SD)
Overall, how satisfied are you with life as a whole these days?	Happiness and life satisfaction	6.5 (2.1)
In general, how happy or unhappy do you usually feel?	Happiness and life satisfaction	6.3 (1.9)
In general, how would you rate your physical health?	Mental and physical health	5.4 (2.4)
How would you rate your overall mental health?	Mental and physical health	6.2 (2.1)
Overall, to what extent do you feel the things you do in your life are worthwhile?	Meaning and purpose	7.6 (2.1)
I understand my purpose in life.	Meaning and purpose	7.2 (2.5)
I always act to promote good in all circumstances, even in difficult and challenging situations.	Character and virtue	7.6 (1.8)
I am always able to give up some happiness now for greater happiness later.	Character and virtue	7.4 (2.2)
I am content with my friendships and relationships.	Close social relationships	7.1 (2.4)
My relationships are as satisfying as I would want them to be.	Close social relationships	6.7 (2.6)
Flourish Index		6.8 (1.6)
How often do you worry about being able to meet normal monthly living expenses?	Financial and material stability	6.7 (3.1)
How often do you worry about safety, food, or housing?	Financial and material stability	7.9 (2.9)
Secure Flourish Index		6.9 (1.6)

Other Scales

Approximately one-fifth of the residents ($n = 17$, 18%) reported low quality of life, and one-third ($n = 33$, 36%) had low satisfaction with their work-life balance. One-third scored positive for depersonalization ($n = 30$, 33%), and almost half had emotional exhaustion ($n = 43$, 47%). The mean empathic concern subscale of the interpersonal reactivity index was 22.0 ($SD = 4.4$).

Simple Linear Regressions With FI and SFI

As shown in TABLE 3, the following were significantly associated with lower FI and SFI scores in simple linear regressions: low quality of life, low satisfaction with work-life balance, high depersonalization, and high emotional exhaustion (all $P < .001$). The empathic concern subscales were also significantly correlated with the FI ($P = .013$) and SFI ($P = .036$), with lower empathic concern scores seen in those with lower flourishing scores. Having a pet was associated with lower FI ($P = .037$) and SFI scores ($P = .028$). Interns reported lower SFI scores than those in postgraduate years 2, 3, and 4 ($P = .047$). Other studied variables were not correlated with FI or SFI scores.

Independent Associations With FI and SFI in Multiple Linear Regressions

In the best multivariate model for FI, low quality of life, low satisfaction with work-life balance, high

emotional exhaustion, lower empathic concern, and having a pet were all significantly associated with lower FI scores ($R^2 = 0.59$; $F[14, 69] = 7.1$; $P < .001$), while controlling for other variables (TABLE 4, Model 1). Similarly, low quality of life, high emotional exhaustion, lower empathic concern, and having a pet were all significantly associated with lower SFI scores ($R^2 = 0.55$; $F[14, 69] = 6.1$; $P < .001$), while controlling for other variables (TABLE 4, Model 2).

Discussion

This study was the first to deploy VanderWeele's flourishing measure in a population of medical residents. The associations between this novel measure and other instruments assessing related constructs yield insight into what high flourishing scores among medical residents actually represent. The flourishing measure may be significant for medical education as schools, programs, and educators are committed to helping learners thrive.

The mean FI and SFI scores across all residents were lower than previously established means in Sri Lanka, Mexico, China, Cambodia, Poland, and 4 US samples,⁴ tentatively suggesting that medical residents may be flourishing less than those in the general population. These results are similar to those reported in systematic reviews of well-being in residency, which discovered that resident well-being was lower than population norms.^{8,12} Importantly, the flourishing measure differs from other models of well-being used in education research, such as the PERMA

TABLE 3Mean FI and SFI Scores by Well-Being Variables and Participant Characteristics^a

Variable	n (%)	Mean FI (SD)	P Value ^b	Mean SFI (SD)	P Value ^b
Quality of life (QOL)			< .001		< .001
Low QOL	17 (19)	4.9 (1.6)		5.0 (1.6)	
Higher QOL	73 (81)	7.3 (1.3)		7.3 (1.3)	
Satisfaction with work-life balance			< .001		< .001
Low satisfaction	32 (36)	5.5 (1.6)		5.8 (1.6)	
Higher satisfaction	58 (64)	7.5 (1.2)		7.5 (1.2)	
Depersonalization			< .001		< .001
High depersonalization ($\geq$ weekly)	30 (33)	5.9 (1.8)		6.1 (1.7)	
Less depersonalization (< weekly)	60 (67)	7.3 (1.4)		7.3 (1.4)	
Emotional exhaustion			< .001		< .001
High emotional exhaustion ($\geq$ weekly)	42 (47)	5.9 (1.7)		6.0 (1.6)	
Less emotional exhaustion (< weekly)	48 (53)	7.6 (1.1)		7.7 (1.1)	
Postgraduate year (PGY)			.08		.047
Intern	30 (33)	6.4 (1.8)		6.4 (1.8)	
PGY-2, -3 or -4	60 (67)	7.0 (1.5)		7.1 (1.5)	
Pet			.037		.028
Has pet	26 (29)	6.2 (1.7)		6.3 (1.7)	
No pet	64 (71)	7.0 (1.6)		7.1 (1.5)	

Abbreviations: FI, Flourish Index; SFI, Secure Flourish Index

^a Only participants with complete FI and SFI data (n = 90) were included in these n's.^b Bold P values are considered significant.

model, by including physical health and character/virtue.^{22,23}

Well-being variables were related to the FI and SFI in the regressions. The association between the flourishing indices and these well-being metrics suggests these 2 indices may represent inclusive

composite measures of flourishing during residency training. While we are unable to ascertain why interns scored lower on the SFI than residents in other years, their lower SFI scores may be related to their medical school debt compounded by the expenses of moving for residency as well as other substantive life changes

TABLE 4

Multiple Linear Regression of Well-Being Measures and Participant Characteristics on FI (Model 1) and SFI (Model 2)

Covariate	Model 1 (Outcome = FI)		Model 2 (Outcome = SFI)	
	B (95% CI)	P Value ^a	B (95% CI)	P Value ^a
Low QOL	-1.2 (-2.1, -0.3)	.011	-1.4 (-2.3, -0.4)	.004
Low satisfaction with work-life balance	-0.8 (-1.5, -0.2)	.016	-0.5 (-1.2, 0.2)	.13
High depersonalization	-0.1 (-0.8, 0.5)	.66	-0.1 (-0.7, 0.6)	.87
High emotional exhaustion	-1.0 (-1.6, -0.3)	.005	-0.9 (-1.6, -0.3)	.005
Empathic concern (IRI-EC)	0.1 (0.03, 0.2)	.005	0.1 (0.02, 0.1)	.015
Having a pet	-0.9 (-1.6, -0.3)	.005	-1.0 (-1.6, -0.3)	.003
Age	-0.03 (-0.1, 0.1)	.58	-0.03 (-0.1, 0.1)	.62
Female	0.04 (-0.5, 0.6)	.87	-0.03 (-0.6, 0.5)	.91
Non-white	-0.2 (-0.8, 0.4)	.57	0.01 (-0.6, 0.6)	.98
Psychiatry program (vs. internal medicine)	-0.4 (-1.0, 0.2)	.21	-0.4 (-1.0, 0.3)	.27
Intern	0.02 (-0.6, 0.6)	.95	-0.1 (-0.7, 0.5)	.80
Partnered	-0.1 (-0.7, 0.6)	.79	0.1 (-0.6, 0.7)	.80
At least 1 child	0.1 (-0.8, 1.0)	.83	-0.1 (-0.9, 0.8)	.90
Debt above median	-0.1 (-0.6, 0.4)	.69	-0.2 (-0.8, 0.3)	.40

Abbreviations: FI, Flourish Index; SFI, Secure Flourish Index; B, unstandardized coefficient; CI, confidence interval; QOL, quality of life; IRI-EC, Interpersonal Reactivity Index-Empathic Concern.

^a Bold P values are considered significant.

that may coincide with the transition, such as marriage and evolving childcare expenses.

Pet ownership was associated with lower levels of flourishing. Prior studies have found nuances in the relationship between pet ownership and well-being; depending on the pet and human subjects, analyses have demonstrated positive, negative, and neutral relationships between these 2 variables.^{24–26} Unfortunately, our cross-sectional data are not able to parse the directionality of this association or determine how pet ownership may impact flourishing over time—questions that warrant further investigation. While pets offer support and companionship, it is possible that during residency when trainees spend long hours away from home, the care of animals represents added responsibility, resulting in stress and guilt.

Residency is a time of immense professional growth, presenting an opportunity for residency programs to help nurture flourishing among trainees. Although it may be difficult to implement, residency programs should adopt proactive practices that prioritize and bolster flourishing; these efforts could differ substantively from efforts that address burnout reactively. To support such a culture, residency training programs and the larger medical community may need to invest in interventions that promote flourishing, while simultaneously changing draining and demoralizing systems processes. Allowing space for thoughtful reflection,²⁷ promoting supportive relationships,²⁸ and reminders of long-term goals may also promote personal growth during training. Residency program directors and core faculty who know trainees well may be in the best position to work with trainees to establish individualized plans to address each learner's specific flourishing domains in need of attention. Program-wide administration of the flourishing measure could assist with strategic planning of targeted interventions to address domains with the lowest scores by the majority of a program's learners.

Several limitations of this study should be considered. First, the relatively small number of subjects and the sampling from a single institution limits the generalizability of the findings. Second, because this is a novel measure, there are not yet established thresholds or cutoffs for high or low flourishing, making it difficult to interpret the significance of the mean FI and SFI scores in our sample. Flourishing scores below 6 are cause for concern, since in a wide range of settings, this represents a considerable deviation from the mean.⁴ Future studies should establish comprehensive validity evidence for the flourishing measure in samples of medical learners. Further investigation

into scores in other populations (eg, individuals of similar age in other professional training programs) and correlates of lower flourishing scores may help to elucidate meaningful cutoffs. Finally, we measured flourishing at a single point in time, offering a snapshot of resident well-being during winter. The distribution may differ at other points throughout the academic year.

The conceptual model for medical trainee well-being should go well beyond the absence of burnout and despair. The concept of flourishing, and its ability to be measured using the flourishing measure, provides a promising avenue for considering wellness in medical education. Culturally within medical education, we have to decide the extent to which we value and prioritize the flourishing of medical trainees compared to other educational outcomes that typically serve as our focus.

Conclusions

This study provided a preliminary look at a promising metric—the flourishing measure—in a group of internal medicine and psychiatry residents associated with a single US medical school. Measuring flourishing using this instrument is feasible and useful as it is related to constructs of well-being and burnout.

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