

Association of Self-Reported Burnout and Protective Factors in Single Institution Resident Physicians

Elena A. Wood, MD, PhD
Sarah C. Egan, MS
Brittany Ange, EdD

Humberto Garduno
David R. Williams, MD
Tasha R. Wyatt, PhD

ABSTRACT

Background Studies examining mitigating factors associated with residents' experience of burnout have found mixed results; thus the most effective approaches for programs to prevent resident burnout are unclear.

Objective We used mixed methods to explore the association of 4 psychological constructs thought to be important protective factors for burnout—grit, resiliency, social support, and psychological flexibility—across a wide variety of residency programs at 1 institution.

Methods The explanatory sequential study design included an online survey of previously published scales measuring burnout, grit, resiliency, social support, and psychological flexibility. The survey was sent to 20 residency programs in a single institution during the 2017–2018 academic year. Data were analyzed using descriptive statistics and ordinal logistic regressions to determine the association of protective factors and demographic variables. Interviews with 13 residents were conducted and analyzed deductively and inductively to identify when and how residents employed the protective factors.

Results Among the 268 responders (51% response rate), grit, resiliency, social support, and psychological flexibility were individually inversely associated with burnout level. However, resiliency and relationship status were no longer associated with burnout when all 4 factors were included in the model. Interviews revealed that grit both protects from and contributes to burnout, residents prefer peer support, and they cognitively “step back” when stress is high.

Conclusions Although many programs and institutions focus on resiliency in wellness programs, there may be other factors to consider, such as grit and equipping students with tools to disengage psychologically when feeling stressed or overwhelmed.

Introduction

Work-related burnout in residents is prevalent and associated with increased depression levels, medical errors, and patient safety problems.^{1–5} Graduate medical education programs have implemented a variety of approaches to address burnout.⁶ Yet a 2017 systematic review⁷ found that the only intervention to consistently improve the domains of emotional exhaustion and overall burnout scores was changing resident work hour limits; all other interventions produced mixed results.

Other studies^{8–12} offer some evidence to suggest there may be protective factors for burnout in residents: grit, resiliency, and social support. Grit is a personality trait; it describes an individual's perseverance toward reaching a long-term goal⁹ and measures one's ability to maintain sustained effort for an extended period of time.¹³ Resiliency is a skill that

helps individuals “bounce back” from stressful events, regain composure, and persevere. Both are useful in overcoming challenges but may function differently as protective factors against burnout. Another factor, high levels of social support from friends, family, and colleagues,¹⁴ may provide a layer of safety and comfort as well as means for coping with difficulties.⁸

Psychological flexibility is another potentially protective construct. Psychological flexibility has not been studied in residents, but it has been evaluated in other workplace settings.¹⁵ It is a measure of an individual's ability to focus on the current situation and take action to achieve their goals, depending on the available opportunities. It has been considered an important process in helping individuals reframe their thinking before they feel overwhelmed, possibly mitigating against burnout in residents.¹⁶ The purpose of this study was to use mixed methods to explore the association of these 4 potentially protective factors for burnout—grit, resiliency, social support, and psychological flexibility—across a wide variety of residency programs at 1 institution to gain insights for future program interventions.

DOI: <http://dx.doi.org/10.4300/JGME-D-19-00645.1>

Editor's Note: The online version of this article contains the interview questions and results of Spearman correlation coefficients assessing the association of burnout with protective factors.

Methods

Participants included residents and fellows who were training in 1 of the 20 programs at the Medical College of Georgia at Augusta University. The study employed an explanatory sequential design,¹⁷ in which quantitative data are followed by qualitative data for interpretive purposes. An online survey was created with questions from previously used scales. Burnout was measured with the Maslach Burnout Inventory–Human Services Survey,² which is a shortened 1-item version. Scores range from 1 to 5, with higher scores indicating a lower level of burnout. The 1-item measure was selected over the full 22-item inventory to reduce the total number of survey questions, given that the main survey focus was on the 4 potentially mitigating psychological factors.

Grit was measured using the 8-item Short Grit Scale.^{18,19} Responses ranged from 1 (not like me at all) to 5 (very much like me). The total Short Grit Scale score is calculated as an average of the 8 items. The maximum score on this scale is 5 (extremely gritty), and the lowest score is 1 (not at all gritty). Resiliency was measured using the 10-item Connor-Davidson Resilience Scale.^{20,21} Responses are on a 5-point scale, ranging from 0 (not true at all) to 4 (true nearly all the time). The 10 items are summed to yield a total score ranging from 0 to 40, with higher scores reflecting greater resilience. Social support was measured using the 12-item Interpersonal Support Evaluation List-12 questionnaire.²² For the purposes of this study, reverse-scored items were reworded so that all item responses ranged from 1 (definitely false) to 4 (definitely true). The 12 items are summed to yield a total score of 12 to 48, where a higher score indicates higher social support. Psychological flexibility was measured using the 7-item Work-Related Acceptance and Action Questionnaire.²³ The items used a scale ranging from 1 (never true) to 7 (always true), in which higher scores indicate a greater level of psychological flexibility. The 7 items are summed to yield a total score of 7 to 49. The survey also included demographic information (gender, age, race, ethnicity, relationship status, specialty, residency year). These 5 survey instruments were combined into a single online survey and sent to all 527 residents in the 2017–2018 academic year.

All statistical analyses were performed using SAS version 9.4 (SAS Institute Inc, Cary, NC), and statistical significance was assessed using an alpha level of .05. Descriptive statistics (frequencies and percentages or means and standard deviations) were calculated. The Spearman rho correlation coefficients

What was known and gap

Graduate medical education programs have implemented various approaches to address burnout, but a 2017 systematic review demonstrated that only changes to work hour limits were shown to consistently improve the domains of emotional exhaustion and overall burnout scores.

What is new

A mixed-methods study that explores the association of 4 psychological constructs—grit, resiliency, social support, and psychological flexibility—across a variety of residency programs.

Limitations

Study was conducted in a single institution, limiting generalizability. A 51% survey response means the findings may not be representative of the full population of residents.

Bottom line

Grit had the largest association with burnout. Peer support and psychological flexibility are important for dealing with the stresses of residency.

were calculated to determine the association of burnout with grit, resiliency, social support, and psychological flexibility scores. Due to the ordinal nature of the dependent variable (burnout), ordinal logistic regression was used to determine the association of burnout with grit, resiliency, social support, psychological flexibility, and demographic variables. This model estimates a proportional odds ratio (OR) for each predictor (protective factors) when shifting to the next burnout category (1–5). Each independent variable was first examined in a bivariate model on burnout.

Additionally, 13 residents volunteered to participate in individual semistructured interviews that explored their experiences with stress and burnout (TABLE 1). They volunteered to participate in the interview by including their names and contact information at the bottom of the survey. The research team chose an educational researcher (T.R.W.) not involved with the residency programs to conduct the interviews. The team thought the interviewer's lack of prior involvement would allow her to appear impartial and nonthreatening when probing and asking follow-up questions.

The interviewer took a pragmatic approach²⁴ in the process of data collection and analysis, which accepts philosophically that there are singular and multiple realities that can best be measured and observed using a combination of mixed-methods research. In this case, the survey examined the strength and interrelationship among the constructs, while the interviews examined the constructs as applied in “the real world.”²⁴ The interview protocol was tested among the researchers, piloted on residency directors, and revised several times until all questions were clear and prompted participants' recollection and articulation of their stress and

TABLE 1

Programs and Postgraduate Year (PGY) Levels of Each Resident Who Participated in Interviews

Department	PGY
Pediatrics	1
Internal medicine	1
Emergency medicine	2
Psychiatry	2
Psychiatry	3
Psychiatry	3
Emergency medicine pediatrics	4
Neurology	4
Psychiatry	4
Pathology	4
Pediatric neonatology	6
Pediatric neonatology	6
Psychiatry, child and adolescent	8

burnout experiences (interview questions provided as online supplemental material).

Each face-to-face or telephone interview was audio-recorded and lasted 45 to 60 minutes. Through ongoing memos and discussions, the research team iteratively analyzed the interviews after each trainee was interviewed. The research team believed saturation had been reached by the 13th interview when the data began to repeat itself. The interviews were then transcribed and analyzed initially by a research assistant and a second time by the interviewer using direct content analysis.²⁵ The research assistant initially conducted a deductive analysis to identify where trainees implicitly or explicitly discussed grit, social support, and psychological flexibility as protective factors for burnout. The research assistant, an undergraduate student interested in educational research as part of his preparation for medical school, was unaffiliated with graduate medical education.

Following each of the first 3 interviews, the interviewer checked the accuracy of the initial coding, engaged in discussions to resolve coding discrepancies, and amended the code book for subsequent coding. The interviewer then conducted an inductive analysis to understand how and when residents applied these factors to mitigate stress and burnout. The inductive analysis was then discussed with the research assistant to ensure accuracy and trustworthiness of the interpretation. Resiliency as a protective factor was not explored because it was not included in the final linear regression model.

The study was approved by the Augusta University Institutional Review Board.

Results

Quantitative Results

Of the 527 residents and fellows training at Medical College of Georgia, 268 responded (51%). Responses with missing scores for burnout were removed from the data set ($n = 4$). The average age of participants was 30.6 years (SD 4.1); 54% (142 of 265) were male; 67% (178 of 266) were married or had a long-term partner; and 63% (163 of 258) were non-Hispanic white. The results indicated residents were experiencing occasional burnout. The average score for burnout was 3.6 (SD 0.9) with 148 (56%) answering, “Occasionally I am under stress,” and 59 (22%) answering, “I am definitely burning out.” Relationship status was associated with burnout (ie, “married or long-term partner” respondents were less likely to report highest level of burnout, while “other or divorced” were more likely), but none of the other demographic characteristics, year in residency, or specialty were associated with different burnout levels. Results of Kruskal-Wallis tests showed that modest-to-trivial differences existed in all 4 protective factors by burnout level (TABLE 2). All protective factors were associated with decreased burnout, according to the Spearman rho correlations (provided as online supplemental material).

Although all 4 factors and residents’ relationship status were associated with burnout in each of the bivariate models, resiliency and relationship status were no longer significant in a single model with all 4 factors (TABLE 3). Associations are reported as proportional odds ratios and related 95% confidence intervals (CIs) and P values. Higher psychological flexibility scores were associated with lower burnout score (5, no burnout; OR 1.12; 95% CI 1.08–1.17). Higher grit scores were associated with lower burnout score (5, no burnout; OR 1.65; 95% CI 1.06–2.57). Similarly, higher social support scores were associated with lower burnout score (5, no burnout; OR 1.07; 95% CI 1.03–1.11).

Qualitative Results

Grit: Resident interviews indicated all 13 residents were attempting to balance the competing demands of training within the context of personal and professional goals. They found this balance and the effort required to learn how to prioritize tasks and activities challenging. In describing grit, residents referred to it as an asset to their performance, yet also detrimental to their overall health and well-being. Grit fueled determination and perseverance, which allowed residents to push through challenging times, but this was seen as coming at a high price, especially in how much residents sacrificed their personal goals

TABLE 2

Descriptive Statistics of Demographic Variables, Burnout, Psychological Flexibility, Grit, Resiliency, and Social Support

Variable	Overall (N = 268)	Range	P Value (by Burnout Level) ^b
Age, mean (SD)	30.6 (4.1)	21–55	.70 ^c
Postgraduate year, n (%)			
1	72 (27)		.96 ^c
2	67 (25)		
3	56 (21)		
4	37 (14)		
5	20 (8)		
6	10 (4)		
7	3 (1)		
Gender, n (%)			
Male	142 (55)		.29 ^d
Female	123 (46)		
Relationship status, n (%)			
Single	77 (29)		.05 ^d
Married or long-term partner	178 (67)		
Other or divorced	11 (4)		
Race or ethnicity, n (%)			
Non-Hispanic white (non-UiM) ^a	163 (63)		.44 ^d
Asian or Middle Eastern (non-UiM) ^d	54 (21)		
Black, Latino, Native American, and Native Hawaiian (UiM) ^d	41 (16)		
Burnout, mean (SD)	3.6 (0.9)	1–5	
Psychological flexibility (WAAQ), mean (SD)	37.7 (6.8)	14–49	< .0001 ^c
GRIT-S, mean (SD)	3.7 (0.6)	1.9–5	.0002 ^c
Resiliency (CD-RISC-10), mean (SD)	30.6 (5.6)	9–40	< .0001 ^c
Social support (ISEL-12), mean (SD)	41.5 (6.9)	12–48	.0003 ^c

Abbreviations: UiM, Underrepresented in Medicine; WAAQ, Work-Related Acceptance and Action Questionnaire; GRIT-S, Short Grit Scale; CD-RISC-10, Connor-Davidson Resilience Scale; ISEL-12, Interpersonal Support Evaluation List-12.

^a Underrepresented in Medicine is the Association of American Medical College's categorization to distinguish those racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population.

^b To assess differences in the demographic variables among the 5 levels of burnout, Kruskal-Wallis tests were calculated for continuous dependent variables and chi-square or Fisher exact tests were calculated for categorical dependent variables. The independent variable was burnout level.

^c Kruskal-Wallis test.

^d Fisher exact test.

throughout training. For example, a neurology resident described it this way:

I burned out quicker because I thought I could [do more]. I think that's a product of our culture. Our culture tells you, "You can do anything you want to do! Just go out and capture your dreams!" And that's not true. It's a fallacy. It's a dangerous fallacy.

Grit as both a proactive factor and contributor to burnout was a surprising finding given that the literature conceptualizes it only as a protective factor.

Social Support: Residents' social networks included family, friends, social media, mental health therapists,

and faith communities. However, despite the multiple networks available, residents preferred their immediate peer group for support. About half (6) of the 13 residents perceived their peers as having a more nuanced understanding of the work environment and therefore the best network for working through their stressful experiences. Talking to other residents yielded a sense of satisfaction in processing negative feelings because of a shared understanding of the tasks, activities, and contexts that compose residency. Residents who did not report having this network discussed the lack of avenues to process daily emotional burdens. However, those who described using their peer network found it helpful, as this pediatric resident explained:

TABLE 3

Results of Simple Logistic Regression Models on Burnout Status and Final Logistic Regression Model on Burnout Status

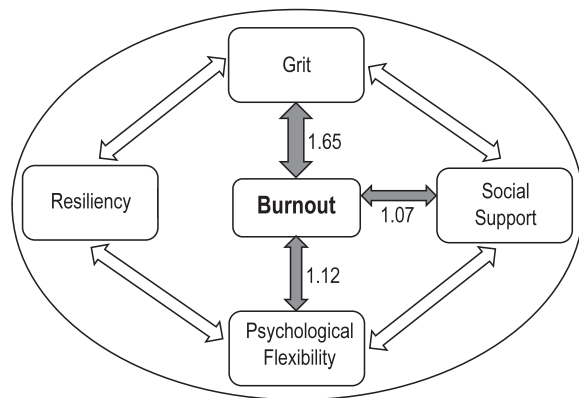
Simple Logistic Regression Models			
Variable	Slope	SE of Slope	P Value
Age	0.0487	0.0297	.10
Postgraduate year	0.0312	0.0803	.70
Gender	−0.0933	0.1189	.43
Relationship status	−0.4874	0.2086	.020
Race	0.1074	0.1614	.51
WAAQ (psychological flexibility)	0.1442	0.0192	< .0001
GRIT-S	0.9278	0.2133	< .0001
CD-RISC-10 (resiliency)	0.1208	0.0223	< .0001
ISEL-12 (social support)	0.0917	0.0175	< .0001
Ordinal Logistic Regression Model			
Variable	OR	95% CI	P Value
WAAQ (psychological flexibility)	1.12	1.08–1.17	< .0001
GRIT-S	1.65	1.06–2.57	.027
ISEL-12 (social support)	1.07	1.03–1.11	.0002

Abbreviations: WAAQ, Work-related Acceptance and Action Questionnaire; GRIT-S, Short Grit Scale; CD-RISC-10, Connor-Davidson Resilience Scale; ISEL-12, Interpersonal Support Evaluation List-12; OR, odds ratio; CI, confidence interval.

It's really nice to talk to the people you work with, because . . . it can be really rough. But, [your colleagues] are all going through the same thing, so it's nice to talk to them. Sometimes in those situations, I talk to my boyfriend about it, but he doesn't get it. He listens, but he's not there in that situation, so it's different. It's nicer to talk with people that you work with.

The shared understanding among residents helps them take shortcuts in explaining daily events and processing their unarticulated negative feelings. However, some residents expressed conflict in approaching their colleagues with their stressful experiences because sharing negative experiences can affect the whole team. Residents explained that, although it helps to process negative feelings with colleagues, it also contributes to an environment that potentially jeopardizes the team's function.

Psychological Flexibility: Nine residents discussed employing psychological flexibility to deal with negative issues contributing to feelings of burnout. The majority of the residents talked about psychological flexibility in terms of disengaging with the stressful moment and trying to establish another perspective. This idea of “taking a step back” was

**FIGURE**

Results of the Study Reflected in the Conceptual Framework

Note: The numbers are odds ratios that represent the strength of association.

employed at multiple levels as residents performed their daily activities. Some used this strategy to help frame their development as a resident; others reflected on the stressful situations and compared them to the stress experienced in previous years. Overall, this strategy helped residents gain perspective in the stressful moment and better engage with the situation. This process was described by a pediatric emergency medicine resident:

I recognize the big picture and where things are going. I place myself in the big picture, step back, and say, “Ok, let’s take a few deep breaths. Where am I at? Let’s stick to the goal, which is to help people be healthy.”

Temporarily disengaging from the stressful situation and taking on a new perspective helped residents manage moments that felt insurmountable in their clinical practice.

Discussion

In this study of the associations between 4 protective factors and residents’ burnout levels, our results support that grit, resiliency, social support, and psychological flexibility are important variables related to burnout level. Although all 4 factors appear related to burnout, in this study of residents in 20 different specialties, resiliency and relationship status were no longer associated with residents’ burnout levels when all 4 were entered into a model (FIGURE). In addition, grit had the largest association with burnout, which confirms previous research.^{8,11,12}

The study findings also suggest that residency programs should consider developing structured opportunities for residents to establish meaningful

connections with each other in an effort to mitigate stress and burnout.²⁶ Residents appear to benefit from a strong sense of community in which they can feel psychologically safe to talk with one another about their challenges.²⁷ These opportunities may provide a form of emotional catharsis and a means of emotionally processing events. Residency programs that have created these structured opportunities report long-standing effects on residents' wellness and engagement²⁸ and may serve as models for others interested in creating programs at their institutions.

Additionally, many programs focus on resiliency in their wellness programs, but our findings show that resiliency was no longer significant when the other constructs were added to the model. Whereas resiliency assists individuals with recovery after a setback,²⁹ grit assists individuals in focusing on long-term goals, which is useful in environments requiring constant high achievement for success. Therefore, residency programs may want to emphasize the importance of having grit as an essential characteristic of residency success but equip residents with the tools they need to psychologically disengage when needed.

Our study findings are limited by our use of a single institution, which does not necessarily generalize to other settings. In addition, the response rate of 51% does not allow us to conclude that the findings are representative of the full population of residents. The survey questions were modified from those used in other settings and were not tested for validity in this particular population for this purpose, which also may affect our findings. The use of a single item for the definition of burnout may have affected the associations we found. Finally, the selection of 13 residents may have influenced our interpretation of how these psychological constructs interact with burnout in indeterminable ways.

The results indicate this line of inquiry is potentially worth pursuing. We suggest that any future research investigate the relationship between grit and burnout in a multisite study, potentially using the 22-item burnout scale rather than the 1-item scale. In future studies researchers may wish to examine whether interventions targeting grit and psychological flexibility may reduce resident burnout.

Conclusions

In this study of 20 different residency programs, we found grit, resiliency, social support, and psychological flexibility to be associated with burnout in residents, but when placed in an ordinal logical regression model, resiliency and relationship status were explained by the 3 other factors. Grit alone had the largest association with burnout. Resident

interviews highlighted the importance of peer support and psychological flexibility in dealing with the stresses of residency.

References

1. Berg D, Divakaran S, Stern R, Warner L. Fostering meaning in residency to curb the epidemic of resident burnout: recommendations from four chief medical residents. *Acad Med*. 2019;94(11):1675–1678. doi:10.1097/ACM.0000000000002869.
2. Rohland B, Kruse G, Rohrer J. Validation of a single-item measure of burnout against the Maslach Burnout Inventory among physicians. *Stress Health*. 2004;20(2):75–79. doi:10.1002/smi.1002.
3. IsHak W, Lederer S, Mandili C, Nikraves R, Seligman L, Vasa M, et al. Burnout during residency training: a literature review. *J Grad Med Educ*. 2009;1(2):236–242. doi:10.4300/JGME-D-09-00054.1.
4. West C, Dyrbye L, Shanafelt T. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516–529. doi:10.1111/joim.12752.
5. Thomas NK. Resident burnout. *JAMA*. 2004;292(23):2880–2889. doi:10.1001/jama.292.23.2880.
6. Weight C, Sellon J, Lessard-Anderson C, Shanafelt T, Laskowski E. Physical activity, quality of life, and burnout among physician trainees: the effect of a team-based incentivized exercise program. *Mayo Clin Proc*. 2013;88(12):1435–1442. doi:10.1016/j.mayocp.2013.09.010.
7. Busireddy K, Miller J, Ellison K, Ren V, Qayyum R, Panda M. Efficacy of interventions to reduce resident physician burnout: a systematic review. *J Grad Med Educ*. 2017;9(3):294–301. doi:10.4300/JGME-D-16-00372.1.
8. Salles A, Lin D, Liebert C, Esquivel M, Lau JN, Greco RS, et al. Grit as a predictor of risk of attrition in surgical residency. *Am J Surg*. 2017;213(2):288–291. doi:10.1016/j.amjsurg.2016.10.012.
9. Dam A, Petrer A, Jones M, Haughey M, Gaeta T. The relationship between grit, burnout, and well-being in emergency medicine residents. *AEM Educ Train*. 2018;3(1):14–19. doi:10.1002/aetd.2.10311.
10. Taku K. Relationships among perceived psychological growth, resilience, and burnout in physicians. *Pers Individ Dif*. 2014;59(March):120–123.
11. Halliday L, Walker A, Vig S, Hines J, Brecknell J. Grit and burnout in UK doctors: a cross-sectional study across specialties and stages of training. *Postgrad Med J*. 2017;93(1101):389–394. doi:10.1136/postgradmedj-2015-133919.
12. Salles A, Cohen G, Mueller C. The relationship between grit and resident well-being. *Am J Surg*.

- 2014;207(2):251–254. doi:10.1016/j.amjsurg.2013.09.006.
13. Duckworth A, Peterson C, Matthews M, Kelly D. Grit: perseverance and passion for long-term goals. *J Pers Soc Psychol.* 2007;92(6):1087–1101. doi:10.1037/0022-3514.92.6.1087.
 14. Nie Z, Jin Y, He L, Chen Y, Ren X, Yu J, et al. Correlation of burnout with social support in hospital nurses. *Int J Clin Exp Med.* 2015;8(10):19144–19149.
 15. Ruiz J, Odriozola-Gonzalez P. The predictive and moderating role of psychological flexibility in the development of job burnout. *Universitas Psychologica.* 2017;6(4):1. doi:10.11144/javeriana.upsy16-4.pmrp.
 16. Lloyd J, Bond F, Flaxman P. The value of psychological flexibility: examining psychological mechanisms underpinning a cognitive behavioural therapy intervention for burnout. *Work Stress.* 2013;27(2):181–199. doi:10.1080/02678373.2013.782157.
 17. NIH Office of Behavioral Social Sciences Research. *Best Practices for Mixed Methods Research in the Health Sciences.* 2nd ed. Bethesda, MD: US Dept of Health and Human Services, National Institutes of Health; 2018. <https://www.obssr.od.nih.gov/wp-content/uploads/2018/01/Best-Practices-for-Mixed-Methods-Research-in-the-Health-Sciences-2018-01-25.pdf>. Accessed April 2, 2020.
 18. Duckworth A, Quinn P. Development and validation of the Short Grit Scale (Grit-S). *J Pers Assess.* 2009;91(2):166–174. doi:10.1080/00223890802634290.
 19. Duckworth AL, Quinn PD. Short Grit Scale. <http://www.sjdm.org/dmidi/files/Grit-8-item.pdf>. Accessed April 2, 2020.
 20. Connor KM, Davidson JRT. The Connor-Davidson Resilience Scale. <http://www.connordavidson-resiliencescale.com/index.php>. Accessed April 2, 2020.
 21. Campbell L, Stein M. Psychometric analysis and refinement of the Connor–Davidson Resilience Scale (CD-RISC): validation of a 10-item measure of resilience. *J Trauma Stress.* 2007;20(6):1019–1028. doi:10.1002/jts.20271.
 22. Cohen S, Mermelstein R, Kamarck T, Hoberman H. Measuring the functional components of social support. In: Sarason IG, Sarason RB, eds. *Social Support: Theory, Research and Applications.* Dordrecht, The Netherlands: Springer; 1985:73–94. NATO ASI Series (D: Behavioural and Social Sciences); vol. 24.
 23. Bond F, Lloyd J, Guenole N. The Work-Related Acceptance and Action Questionnaire (WAAQ): initial psychometric findings and their implications for measuring psychological flexibility in specific contexts. *J Occup Organ Psychol.* 2013;86(3):331–347. doi:10.1111/joop.12001.
 24. Feilzer M. Doing mixed methods research pragmatically: implications for the rediscovery of pragmatism as a research paradigm. *J Mixed Methods Research.* 2010;4(1):6–16. doi:10.1177/1558689809349691.
 25. Hsieh H, Shannon S. Three approaches to qualitative content analysis. *Qual Health Res.* 2005;15(9):1277–1288. doi:10.1177/1049732305276687.
 26. Ziegelstein R. Creating structured opportunities for social engagement to promote well-being and avoid burnout in medical students and residents. *Acad Med.* 2018;39(4):537–539. doi:10.1097/ACM.0000000000002117.
 27. Rogers E, Polonijo A, Carpio R. Getting by with a little help from friends and colleagues: testing how residents' social support networks affect loneliness and burnout. *Can Fam Physician.* 2016;62(11):e677–e683. <https://www.cfp.ca/content/62/11/e677>. Accessed April 6, 2020.
 28. Hernandez R. Creating structured opportunities for social interactions to promote wellness: one residency program's experience. *Acad Med.* 2018;93(10):1421–1422. doi:10.1097/ACM.0000000000002357.
 29. Stoffel J, Cain J. Review of grit and resilience literature within health professions education. *Am J Pharm Educ.* 2019;82(2):6150. doi:10.5688/ajpe6150.



All authors are with Augusta University. **Elena A. Wood, MD, PhD**, is Associate Professor, Educational Innovation Institute, Medical College of Georgia; **Sarah C. Egan, MS**, is Manager of Evaluation and Assessment, Evaluation Services, Academic Affairs, Medical College of Georgia; **Brittany Ange, EdD**, is Biostatistician and Research Support Center Manager, Department of Population Health Sciences, Division of Biostatistics and Data Science, Medical College of Georgia; **Humberto Garduno** is a Health Services Student; **David R. Williams, MD**, is Assistant Professor, Medical Director, Outpatient Services, and Associate Director of Psychiatric Education and Training, Department of Psychiatry and Health Behavior, Medical College of Georgia; and **Tasha R. Wyatt, PhD**, is Associate Professor, Educational Innovation Institute, Medical College of Georgia.

Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

Corresponding author: Elena A. Wood, MD, PhD, Educational Innovation Institute, 1120 15th Street, GB 3352, Augusta, GA 30912, 706.446.4980, eawood@augusta.edu

Received September 12, 2019; revisions received February 20, 2020, and March 12, 2020; accepted March 12, 2020.