

Original Article in Psychology

The effects of mindful self-care on medical resident wellness, depression, and burnout

Wendy M. GUYKER¹, Evette A. ADDAI², Catherine P. COOK-COTTONE^{3*},
Susan M. ORRANGE⁴, Sofie SCALETTA⁵

Affiliations:

¹Department of Counseling, School, and Educational Psychology, University at Buffalo, The State University of New York, Buffalo, NY, USA. E-mail: wmguyker@buffalo.edu ORCID: <https://orcid.org/0000-0003-2874-2439>.

² Mountain of Change Counseling and Psychological Services, Chicago, USA. E-mail: evetteaddai@mountainofchange.org ORCID: <https://orcid.org/0000-0001-6036-762X>.

³ Department of Counseling, School, and Educational Psychology University at Buffalo, The State University of New York, Buffalo, NY, USA. E-mail: cpcook@buffalo.edu ORCID: <https://orcid.org/0000-0001-7-7146-066X>.

⁴ Department of Family Medicine, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo, The State University of New York, Buffalo, NY, USA. E-mail: sorrangle@buffalo.edu ORCID: <https://orcid.org/0009-0000-8722-1153>.

⁵ Department of Counseling, School, and Educational Psychology, University at Buffalo, The State University of New York, Buffalo, NY, USA. E-mail: smscalet@buffalo.edu ORCID: <https://orcid.org/0009-0000-6585-9834>.

*Corresponding Author:

Catherine P. Cook-Cottone, Professor of Counseling, School, and Educational Psychology, University at Buffalo, Buffalo, NY, USA. E-mail: cpcook@buffalo.edu.

Abstract

Introduction: The Accreditation Council for Graduate Medical Education (ACGME), a U.S. nonprofit organization setting educational standards for safe and high-quality medical care, recently expanded its requirements for resident well-being, emphasizing self-care. However, little research exists on this topic. This study aimed to assess the types and frequency of mindful self-care behaviors, defined as intentional practices that promote awareness of internal needs and external demands. It also examined the relationship between self-care, well-being, burnout, distress, and depression, and whether self-care can protect residents from depression linked to burnout and distress.

Methods: A cross-sectional survey was conducted with medical residents at a Northeastern U.S. medical school over three months. Residents in their first four years of surgical and non-surgical specialties received an email with a survey link and informed consent. Mindful self-care was assessed using the Mindful Self-Care Scale (MSCS), distress with the Physician Well-Being Index (PWBI), depression with the Patient Health Questionnaire-9 (PHQ-9), and wellness with the Brief Resident Wellness Profile (BRWP). Data were analyzed using SPSS, with moderation analyses performed to explore self-care's role in mitigating depression linked to distress.

Results: A total of 104 residents participated (15.95% response rate). Self-care positively correlated with resident well-being ($r = .62, p < .0001$) and negatively correlated with resident distress ($r = -.50, p < .0001$) and resident depression ($r = -.56, p < .0001$). Burned-out residents had significantly less self-care than those not burned out ($F(1,97) = 15.69, p < .0001$). Moderation analyses evidenced that mindful self-care is protective for residents against developing depression related to burnout and distress.

Discussion: This research shows that resident self-care is strongly linked to well-being and is associated with lower distress, depression, and burnout. It highlights that self-care can protect against poor health outcomes during residency and emphasizes that self-care can involve changing one's approach rather than requiring additional resources like time or money.

Take-home message: There is limited research on self-care among medical residents, yet this study demonstrates its crucial role in enhancing well-being and reducing distress, depression, and burnout. Self-care practices serve as a protective buffer, helping residents maintain better mental and physical health despite the challenges of residency training.

Keywords: Burnout; depression; mental health; mindfulness; self-care.

Cite this paper as: Guyker WM, Addai EA, Cook-Cottone CP, Orrange SM, Scaletta S. The effects of mindful self-care on medical resident wellness, depression, and burnout. J Health Soc Sci. 2024;9(3):367-378. Doi: 10.19204/2024/THFF4.

Received: 10 June 2024; Accepted: 06 September 2024; Published: 15 September 2024

INTRODUCTION

Residency in graduate medical training is a period of considerable stress for many due to its required hours [1,2], professional expectations, financial concerns [3], and workload [4]. These conditions can contribute to mental health concerns, including elevated levels of fatigue and anxiety [4,5], depressive symptoms [5-7], and burnout [2,5,8]. *Burnout* (“a syndrome composed of emotional exhaustion, depersonalization, and reduction of personal accomplishments” [9, p.80] that may result in “negative self-concept, negative attitudes about work, and a loss of caring about work-related issues” [10, p.103]), *depression* (symptoms of depressed mood, loss of interest or pleasure, fatigue, hopelessness, diminished ability to think or concentrate, etc. that cause significant distress or impairment for the individual [11]), and low levels of well-being can contribute to residents providing poorer patient care [1,12] and having decreased empathy [8], higher medical errors [12], issues in relationships with co-workers [1], and suicidal ideation [5]. Enhancing resident well-being has also become a recent focus for residency programs [5,12-15]. It can be difficult to define resident wellness [16] and pinpoint what aspects of well-being to direct efforts toward. *Resident well-being* has been described as the enhancement of multiple aspects of residents’ lives, including family, social, physical, mental, spiritual, environmental, and financial [7,17]. Engagement in wellness behaviors is related to lower depressive symptoms, higher quality of life [7], and lower burnout symptoms [18]. High resident well-being can improve patient care,¹ decrease current burnout symptoms, and even prevent burnout [18].

There is little research on self-care specific to medical residents. Through a review of the literature, only two studies on the topic were found. The first publication highlighted that, among Dutch medical residents and medical students, low levels of self-compassion are related to burnout [19]. The second suggested that an educational compact intervention in self-care can induce behavioral change and improve the well-being of residents practicing family medicine [20].

However, there is ample evidence that higher self-care behaviors are associated with lower rates of burnout [10,21,22], higher positive affect, self-compassion, and better stress management among various healthcare professionals [23]. Self-care behaviors have also been shown to prevent burnout and increase well-being. Similarly, mindfulness positively contributes to resident well-being [24,25]. Mindfulness-based interventions that teach residents, medical students, and physicians mindfulness and self-compassion practices are associated with higher work performance and stronger ability to manage emotions [26], as well as lower levels of anxiety [27], stress [28], and depressive symptoms [26].

With roots in mindfulness-based interventions, mindful self-care extends the conventional conceptualization of self-care [29] and integrates mindfulness and behaviors associated with the traditional notion of self-care. *Mindful self-care* is a form of positive embodiment that involves mindful awareness and assessment of internal needs and external demands as well as purposeful engagement in specific self-care practices to address one’s well-being and personal effectiveness [30]. Mindful self-

care consists of six domains: Physical Care, Supportive Relationships, Mindful Awareness, Self-Compassion and Purpose, Mindful Relaxation, and Supportive Structure [29]. In addition to the lack of research on medical resident self-care, there appear to be no studies that look at the relationships between specific dimensions of mindful self-care among residents, resident mood, and resident well-being. By learning more about self-care behaviors among residents, residency programs can work to develop ways to improve their residents' well-being.

The present study's main objective was to assess the types and frequency of mindful self-care behaviors. A secondary objective was to test hypotheses that self-care would be positively related to resident well-being and negatively related to burnout, distress, and depressive symptoms. A third objective was to examine whether engaging in self-care behaviors can be protective for residents against developing depression related to burnout and distress.

METHODS

Study design, procedure, and ethical aspects

After receiving Institutional Review Board approval for the study (University at Buffalo: protocol code STUDY00001513, approved 4/12/2017), medical residents in residency programs at a Northeastern medical school in the United States were surveyed using a prospective cross-sectional design over a three-month period. Participants were in one of their first four years of residency (done after completing four years of post-graduate medical school) with either surgical or non-surgical specialties. An email explaining the study was sent to residents via the faculty co-chair of the institution's Resident Well-Being Subcommittee, and reminder emails were sent to encourage participation.

The recruitment e-mail contained a link to the survey webpage, informed consent documents, and demographic information. Through the informed consent process, participants were provided contact information for three co-investigators (one counseling doctoral student and two licensed psychologists) and the research participant advocate.

The Resident Well-Being Subcommittee additionally generated a list of free or low-cost mental health care resources that were shared with all residents due to the sensitive nature of the study's topics.

Study participants and sampling

Prior to response collection, a sample size calculator was utilized to determine the ideal sample size for the study. Given there were 652 eligible residents, the minimum number of survey responses required to achieve a 95% confidence level, and a 5% margin of error was 242. Using purposive sampling, the study yielded only 104 participants (a 15.95% response rate). While this response rate is low, it is consistent with other resident and physician survey studies and their response rate trends [31]. Out of the participants, 36 (34.6%) were in their first year of residency, 33 (31.7%) were in their second year; 16 (15.4%) were in their third year, and 19 were in their fourth year or higher (18.2%). Participants included 56 females (53.8%) and 43 (41.3%) males. (Note: Gender identity options beyond the binary, including an option to self-identify, were provided in the survey). 54.4% were 25-29 years old, 33% were 30-34 years old, and 12.6 % were 35 or older.

Study instruments

Mindful self-care was measured using the Mindful Self-Care Scale (MSCS) [29], a 33-item self-report measure assessing six subscale areas of mindful self-care: Physical Care, Supportive Relationships, Mindful Awareness, Self-Compassion and Purpose, Mindful Relaxation, and Supportive Structure via frequency of behaviors on a 5-point scale. Higher scores indicate higher amounts of self-care behaviors [29]. The MSCS was found to have strong internal consistency ($\alpha = 0.89$ for the total measure) and construct validity and reflects preliminary evidence of divergent validity [29].

Resident distress was assessed via the Physician Well-Being Index (PWBI) [32], a seven-item scale that asks about physician burnout, depression, stress, fatigue, and mental and physical quality of life. Items have "yes" or "no" responses and one point is received for each "yes" response. The

item scores are summed, with higher scores indicating higher symptoms of distress and a cut-off of “5 or higher” [32]. The PWBI has been shown to have good construct validity [32,33].

Depression severity was measured using the Patient Health Questionnaire-9 (PHQ-9) [34,35], a 9-item diagnostic depression scale. A list of specific depressive symptoms is provided (e.g., little interest or pleasure in doing things, poor appetite or overeating, suicidal ideation or thoughts of self-harm, etc.), and respondents rate the frequency of symptoms from 0 (not at all) to 3 (nearly every day). Scores are summed and range from 0 to 27. The depression severity ranges are 0-4 (minimal), 5-9 (mild), 10-14 (moderate), 15-19 (moderately severe), and 20 or greater (severe). The measure has been evidenced to have strong internal reliability ($\alpha = 0.84$) and criterion, construct, and external validity [34].

Resident Wellness was assessed by the Brief Resident Wellness Profile (BRWP) [36]. The BRWP, a six-item subscale and a series of mood faces, measures how often residents experience factors related to peak performance and their mood state. Residents rank the frequency of each item from 1 (never) to 5 (always). Scores are summed, and higher scores designate higher resident wellness. The BRWP six-item subscale has good reliability ($\alpha = 0.83$), convergent validity ($r = 0.63$), discriminant validity ($r = -0.37$), and concurrent validity ($p = 0.007$). Its mood faces have good convergent validity ($r = 0.66$), discriminant validity ($r = -0.71$), and concurrent validity ($p = 0.008$) [36].

Data analysis

Statistical Package for the Social Sciences (SPSS) version 24 for Windows [37] was used to compute descriptive statistics and bivariate correlations. Moderation analysis was carried out using PROCESS Macro for SPSS.³⁸ Moderation analyses answer questions of “when” or “for whom” [39]. In examining self-care as a moderator in this study, we are specifically seeking to better understand the “when” question: Is the relationship between distress and depression influenced by the extent one engages in self-care practices? In other words, in the face of distress, when can self-care be protective against depression?

RESULTS

Descriptive statistics for the MSCS are presented in Table 1. T-tests and analyses of variance tests revealed that there were no significant MSCS differences across demographic variables of gender, year in residency program, or age group.

Table 1. Descriptive statistics and scale intercorrelations for MSCS subscales among residents.

	PC	SR	MA	SC	MR	SS	M	SD	α
PC	-						2.38	0.80	0.75
SR	0.19*	-					4.01	0.87	0.81
MA	0.30**	0.21*	-				3.15	0.92	0.90
SC	0.18	0.27**	0.27**	-			2.91	0.89	0.80
MR	0.27**	0.22*	0.27**	0.33**	-		2.44	0.75	0.70
SS	0.55**	0.45**	0.37**	0.25*	0.22*	-	3.29	0.90	0.79
Total	0.65**	0.62**	0.64**	0.62**	0.57**	0.75**	97.07	17.94	0.88

Note: MSCS = Mindful Self-Care Scale; PC = Physical Care; SR = Supportive Relationships, MA = Mindful Awareness; SC = Self-compassion; MR = Mindful Relaxation; SS = Supportive Structure; α = Cronbach’s alpha. * $p < .05$. ** $p < .01$

Of the six MSCS subscales, residents had the lowest scores on Physical Care ($M = 2.38, SD = .80$) and Mindful Relaxation ($M = 2.44; SD = .75$) and scored highest on the Supportive Relationships ($M = 4.00; SD = .86$) and Supportive Structure ($M = 3.29; SD = .90$) subscales. In the initial psychometric evaluation and validation study of the MSCS²⁹ which included community samples of 448 and 452

participants, the mean total scores on the MSCS were 99.6 and 96.8. The mean MSCS score for the residents in this study was 97.1, which is close to and within these normative values.

Bivariate correlational analyses (Table 2) revealed that total mindful self-care was significantly associated with well-being ($r = .62, p < .0001$) and was also strongly negatively associated with distress ($r = -.50, p < .0001$). Residents' mean depression score was in the mildly depressed range ($M = 6.04; SD = 5.21$); however, higher self-care was significantly associated with less depressive symptoms ($r = -.60, p < .0001$). While the relation between resident wellness and total mindful self-care was high, correlations of MSCS subscales were also examined, and all were statistically significant (Table 2).

The strongest correlations with resident wellness were Mindful Awareness, Self-Compassion and Purpose, and Supportive Structure. In looking further at the relations of subscales with resident distress, the strongest inverse relations of distress were with the areas of Mindful Awareness and Supportive Structure. Four of six subscales strongly correlated with resident depression at a magnitude of .40 or higher: Physical Care, Supportive Relationships, Mindful Awareness, and Supportive Structure.

Table 2. Correlations between MSCS scales and Resident Well-Being, Distress, and Depression.

Variable	PC	SR	MA	SC	MR	SS	Total	α
BWRP Resident Wellness (M=19.81, SD=3.91)	.34*	.33*	.52*	.49*	.34*	.48*	.62*	.84
PWBI Resident Distress (M=3.17 SD=1.99)	-.34*	-.27*	-.46*	-.30*	-.15	-.46*	-.50*	.75
PHQ-9 Resident Depression (M=6.05, SD= 5.21)	-.47*	-.43*	-.41*	-.26*	-.10	-.48*	-.56*	.86

Note: MSCS=Mindful Self Care Scale; PC = Physical Care; SR = Supportive Relationships, MA = Mindful Awareness; SC = Self-compassion, MR = Mindful Relaxation; SS = Supportive Structure; α = Cronbach's alpha; BWRP=Brief Resident Wellness Profile; PWBI=Physician Well-Being Index; PHQ-9=Patient Health Questionnaire. * $p < .01$

Burnout was assessed using a single item on the PWBI ("Have you felt burned out from your work in the past month?"), which allowed for analyses of variance to compare self-care by those who did endorse this item versus those who did not. Seventy-one percent of residents reported burnout. Moreover, those burned out had significantly less mindful self-care than those not burned out (Table 3). Significant differences were found between burned-out residents and those who were not, on four of the six MSCS subscales, with the biggest differences found for Physical Care, Mindful Awareness, and Supportive Structure.

Table 3. Burnout and Mindful Self-Care.

MSCS	Burnout	Burnout	F-ratio	p-value
	Yes, mean (SD)	No, mean (SD)		
Physical Care	2.22 (.77)	2.75 (.14)	10.02	.002*
Supportive Relationships	3.91 (.92)	4.24 (.66)	3.05	.084
Mindful Awareness	2.96 (.91)	3.59 (.80)	10.92	.001*
Self-Compassion and Purpose	2.78 (.84)	3.22 (.94)	5.38	.022*
Mindful Relaxation	2.39 (.72)	2.57 (.83)	1.12	.293
Supportive Structure	3.06 (.87)	3.86 (.74)	19.08	<.001*
Total	92.89 (16.84)	107.68 (16.44)	15.69	<.001*

Note: MSCS=Mindful Self Care Scale; Burnout is Item 1 on PWBI (1 = yes, 0 = no). * $p < .01$

To further explore whether the relationship between resident distress and depression depends on the degree of mindful self-care, a moderation analysis was carried out via regression-based path analysis using PROCESS Macro for SPSS [38] (see Figure 1). Specifically, a simple linear moderation model (PROCESS Model 1 [38]) was utilized for estimating, testing, and probing interactions using ordinary least squares regression. The interaction of distress and mindful self-care (b_3 as depicted in the bottom of Figure 1) was found to be statistically different from zero (see Table 4); therefore, we can conclude that the effect of distress on depression among residents depends on the degree of mindful self-care. In other words, mindful self-care moderates the effect of distress on depression.

Figure 1. Simple moderation model as a conceptual diagram (top); moderation model as a statistical diagram (bottom).

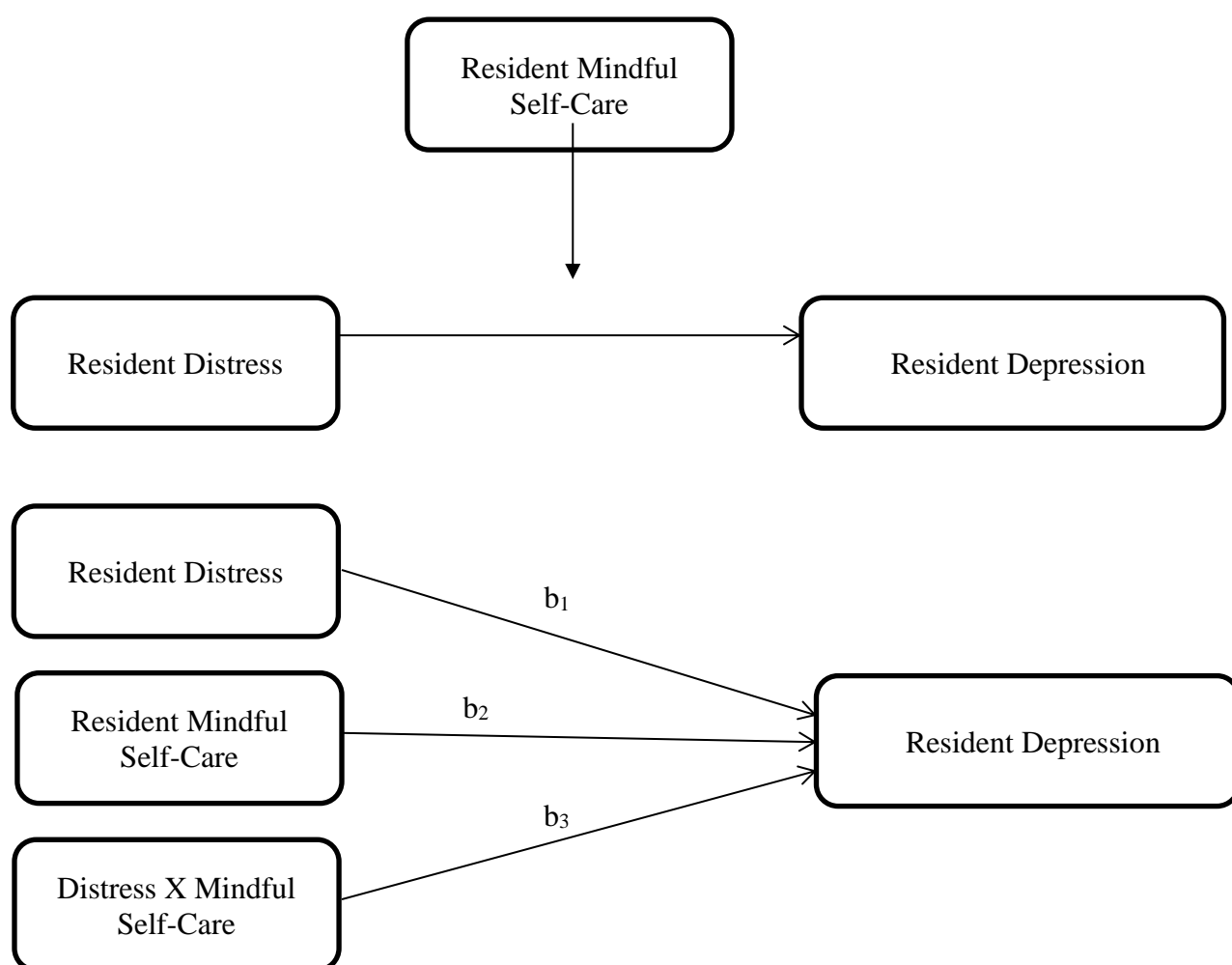
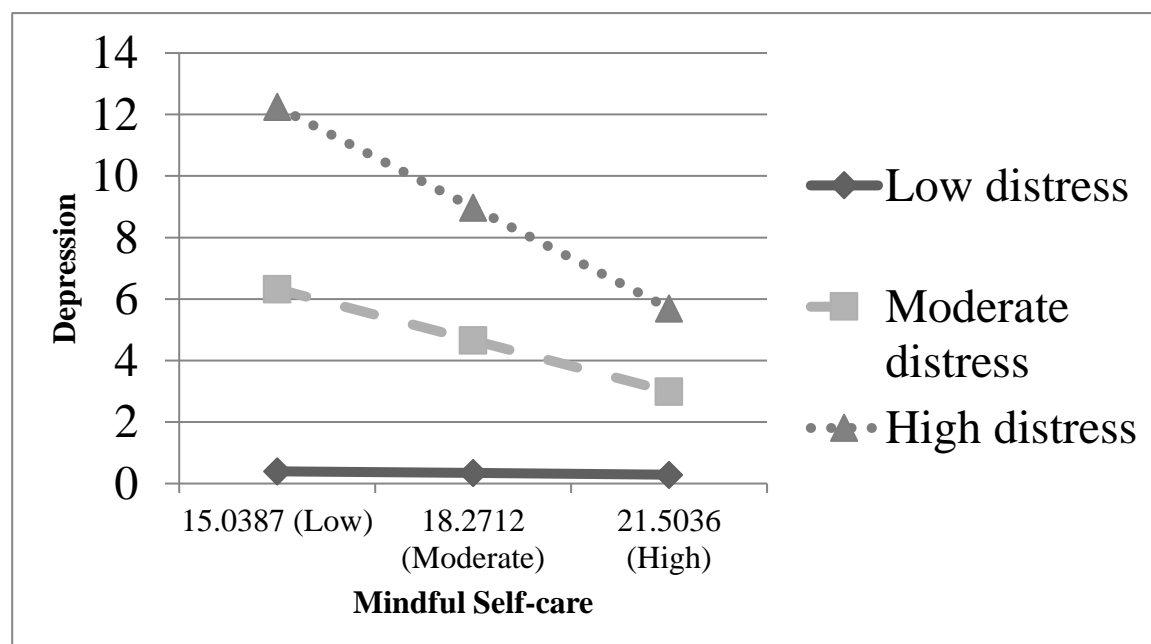


Table 4. Moderation analysis: Ordinary least squares regression model coefficients (standard errors in parentheses).

Model 1 Outcome: Depression		
Predictor	Coefficient	p
Intercept	0.651 (4.062)	.873
Mindful self-care (b ₁)	.017 (.202)	.933
Distress (b ₂)	4.474 (1.00)	<.001
Mindful self-care X distress(b ₃)	-.166 (.054)	<.01
Model R ²	.589	<.001
Interaction ΔR ²	.042	<.01

This interaction was formally probed to more substantively interpret its statistical significance using simple slopes analysis [40]. PROCESS generated the conditional effect of distress on depression at three levels of the moderator, mindful self-care, using the mean score of residents' self-care, and scores one standard deviation above and below the mean. For all three levels of the moderator, the effect of distress on depression was significant at $p < .01$. However, per visual inspection of the interaction (Figure 2 - Visual representation of the moderation of the effect of distress on depression by degree of mindful self-care behaviors), we see that the effect was largest at low levels of mindful self-care and smallest at the highest level of self-care, suggesting that greater self-care can buffer against the developing of resident depression even in the face of resident distress.

Figure 2. Visual representation of the moderation of the effect of distress on depression by degree of mindful self-care behaviors.



DISCUSSION

This is one of the first studies to examine self-care (and the first study to examine mindful self-care) among medical residents. Mindful self-care extends beyond conventional markers of physical

self-care. Mindful self-care reflects a way of being (e.g., positive embodiment) [29]. Overall, quantitative findings indicate that mindful self-care is significantly and conversely related to depression and distress in medical residents. This is consistent with previous research that suggests without mindful self-care, an individual may experience a sense of disconnection, burnout, conflict, or self-harm and may be vulnerable to dissociation, body dissatisfaction, substance-use problems, and disordered eating [30]. Mindful self-care was also found to have a significant, positive relationship with wellness, which is consistent with previous research among mental health professionals [24].

Looking more closely at the findings, patterns were observed across resident wellness, distress, and depression when compared with mindful self-care. The strongest and most consistent correlations across these well-being indicators were in the mindful self-care areas of Mindful Relaxation and Supportive Structure. This suggests that resident self-care can be facilitated in specific areas and still make a difference. Residents most frequently engaged in the mindful self-care areas of Supportive Structure (e.g., organized physical spaces and manageable schedules [29]) and Supportive Relationships (e.g., building and maintaining healthy relationships through regular communication and boundary setting [29]). Supportive Structure and Supportive Relationships have both been found to be associated with resident well-being in previous studies [40]. The relationship domain yielded the second-highest number of qualitative responses, suggesting that residents value interpersonal support (e.g., mentorship programs and social activities). Consistent with previous research [31], the least frequently endorsed items were in Physical Care (e.g., physical activity, nutrition, and hydration [29]) and Mindful Relaxation (e.g., participating in self-soothing and calming activities to relax [29]).

This study has several limitations. For instance, only cross-sectional data were used, making it impossible to examine causality. The sample size was underpowered, and recruitment of subjects only took place within one American university's group of residency programs. Results may have differed (and would have likely been more generalizable) if the sample size were larger or if more institutions were included. The study also suffers from self-selection bias, as participants elected to engage in the survey on their own accord. It is possible this skewed the data and further affected generalizability, as those with a personal interest in the topics of self-care, depression, burnout, and wellness may have been disproportionately represented.

Future researchers should examine the same variables (mindful self-care, wellness, depression, and burnout) among a larger sample of medical residents, across multiple institutions with residency programs, with particular emphasis on demographics (e.g., variability in residency year and specialty and inclusion of sub-specialty fellows). As done in previous studies, it is also important to consider alternative treatment options [41] for residents in addition to how treatments affect residents across the lifespan [42]. Additionally, given the associations that Mindful Relaxation, Supportive Relationships, and Supportive Structure have with resident well-being in this and previous studies, further exploration could be conducted to examine those concepts in isolation. To decrease limitations such as self-selection bias, different sampling techniques (e.g., systematic sampling, simple random sampling, etc.) could be employed. Another potential topic of study is the incorporation of self-care psychoeducation in medical resident training.

CONCLUSION

This study provides evidence that the MSCS is a useful assessment tool to measure self-care behaviors among medical residents. In assessing residents' types and frequencies of mindful self-care behaviors, the highest mindful self-care rates were reported in areas that involve the way one does something (e.g., "I felt supported by people in my life" [29]). Conversely, residents reported the lowest self-care on behaviors that require time (e.g., "I exercised for 30-60 minutes" [29]). The significant correlations among mindful self-care and well-being and mental health indicators were also persuasive. This, along with the strong, negative association mindful self-care has with distress, depression, and burnout underscores the argument and calls for residency programs to focus on self-care urgently and increasingly [43-46]. Recent publications provide suggestions to inform this

process, which include promoting holistic health [47,48] in a global context [49,50], fostering the resident-mentor relationship [51], teaching “trauma-sensitive curricula” [52, p.190] that include emotion regulation strategies [52], and utilizing screening tools that could identify risk for mental distress or occupational dissatisfaction [51].

Moderation analyses revealed that the more effective residents’ practice of mindful self-care behaviors, the less likely distress leads to depression. Hence, self-care practices are protective and can buffer against poor mental and physical health outcomes, even in the face of the many demands that accompany residency training [52-54]. Residents are often left with the perceived notion that the addition of self-care practices to their everyday lives requires time and resources that are not feasible. This study emphasizes the *how* of mindful self-care and not just the *what* (e.g., layering additional actions). This notion warrants further study, but it is promising as a practical way to achieve improved resident mental health through self-care that incorporates mindfulness. The goal is to develop physicians into career and life trajectories that allow them to not just get by, but to flourish in a sustainable fashion. Mindful self-care is evidenced in this study to be a key and accessible mechanism of change that can facilitate medical residents in attaining sustainable strategies and approaches for such success, even in the face of distress and strain of personal resources.

Author Contributions: Conceptualization: E.A.A., W.M.G., S.M.O., and C.P.C-C. Methodology: E.A.A., W.M.G., S.M.O., and C.P.C-C. Software: E.A.A. and W.M.G. Validation: E.A.A. and W.M.G. Formal Analysis: E.A.A. and W.M.G. Investigation: E.A.A. and S.M.O. Resources: E.A.A., W.M.G., S.M.O., and C.P.C-C. Data Curation: E.A.A., W.M.G., and S.M.O. Writing—Original Draft Preparation: E.A.A., W.M.G., S.M.O., C.P.C-C., and S.S. Writing—Review and Editing: E.A.A., W.M.G., S.M.O., C.P.C-C., and S.S. Visualization: E.A.A., W.M.G., S.M.O., and C.P.C-C. Supervision: W.M.G. and C.P.C-C. Project Administration: W.M.G. and C.P.C-C. Funding Acquisition: None. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no specific grant from any funding agency, in the public, commercial or not-for-profit sectors.

Conflicts of Interest: The authors declare no personal or financial conflicts of interest.

Publisher’s Note: Edizioni FS stays neutral with regard to jurisdictional claims in published maps and institutional affiliation.

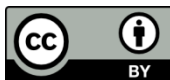
References

1. Ratanawongsa N, Wright SM, Carrese JA. Well-being in residency: Effects on relationships with patients, interactions with colleagues, performance, and motivation. *Patient Educ Couns*. 2008;72(2):194-200. doi:10.1016/j.pec.2008.04.010.
2. Campbell J, Prochazka AV, Yamashita T, Gopal R. Predictors of Persistent Burnout in Internal Medicine Residents: A Prospective Cohort Study: *Acad Med*. 2010;85(10):1630-1634. doi:10.1097/ACM.0b013e3181f0c4e7.
3. West CP, Shanafelt TD, Kolars JC. Quality of Life, Burnout, Educational Debt, and Medical Knowledge Among Internal Medicine Residents. *JAMA*. 2011;306(9). doi:10.1001/jama.2011.1247.
4. Satterfield JM, Becerra C. Developmental challenges, stressors and coping strategies in medical residents: a qualitative analysis of support groups: Challenges, stressors and coping in medical residents. *Med Educ*. 2010;44(9):908-916. doi:10.1111/j.1365-2923.2010.03736.x.
5. Dyrbye LN, West CP, Satele D, Boone S, Tan L, Sloan J, et al. Burnout Among U.S. Medical Students, Residents, and Early Career Physicians Relative to the General U.S. Population: *Acad Med*. 2014;89(3):443-451. doi:10.1097/ACM.0000000000000134.
6. Mata DA, Ramos MA, Bansal N, Khan R, Guille C, Di Angelantonio E, et al. Prevalence of Depression and Depressive Symptoms Among Resident Physicians: A Systematic Review and Meta-analysis. *JAMA*. 2015;314(22):2373. doi:10.1001/jama.2015.15845.
7. Lebensohn P, Dodds S, Benn R, Brooks AJ, Birch M, Cook P, et al. Resident Wellness Behaviors: Relationship to Stress, Depression, and Burnout. *Fam Med*. 2013;45:541-549.
8. Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and Self-Reported Patient Care in an Internal Medicine Residency Program. *Ann Intern Med*. 2002;136(5):358. doi:10.7326/0003-4819-136-5-200203050-00008.

9. Jenaro C, Flores N, Arias B. Burnout and coping in human service practitioners. *Prof Psychol Res Pract.* 2007;38(1):80-87. doi:10.1037/0735-7028.38.1.80.
10. Alkema K, Linton JM, Davies R. A Study of the Relationship Between Self-Care, Compassion Satisfaction, Compassion Fatigue, and Burnout Among Hospice Professionals. *J Soc Work End--Life Palliat Care.* 2008;4(2):101-119. doi:10.1080/15524250802353934.
11. American Psychiatric Association, ed. *Diagnostic and Statistical Manual of Mental Disorders: DSM-5-TR.* Fifth edition, text revision. American Psychiatric Association Publishing; 2022.
12. West CP. Association of Resident Fatigue and Distress With Perceived Medical Errors. *JAMA.* 2009;302(12):1294. doi:10.1001/jama.2009.1389.
13. Daskivich TJ, Jardine DA, Tseng J, Correa R, Stagg BC, Jacob KM, et al. Promotion of Wellness and Mental Health Awareness Among Physicians in Training: Perspective of a National, Multispecialty Panel of Residents and Fellows. *J Grad Med Educ.* 2015;7(1):143-147. doi:10.4300/JGME-07-01-42.
14. Ey S, Moffit M, Kinzie JM, Choi D, Girard DE. "If You Build It, They Will Come": Attitudes of Medical Residents and Fellows About Seeking Services in a Resident Wellness Program. *J Grad Med Educ.* 2013;5(3):486-492. doi:10.4300/JGME-D-12-00048.1.
15. Rosdahl J, Goldhagen B, Kingsolver K, Stinnett S. Stress and burnout in residents: impact of mindfulness-based resilience training. *Adv Med Educ Pract.* Published online August 2015:525. doi:10.2147/AMEP.S88580.
16. Eckleberry-Hunt J, Van Dyke A, Lick D, Tucciarone J. Changing the Conversation From Burnout to Wellness: Physician Well-being in Residency Training Programs. *J Grad Med Educ.* 2009;1(2):225-230. doi:10.4300/JGME-D-09-00026.1.
17. Ratanawongsa N, Wright SM, Carrese JA. Well-being in residency: a time for temporary imbalance? *Med Educ.* 2007;41(3):273-280. doi:10.1111/j.1365-2929.2007.02687.x.
18. Eckleberry-Hunt J, Lick D, Boura J, Hunt R, Balasubramaniam M, Mulhem E, et al. An Exploratory Study of Resident Burnout and Wellness. *Acad Med.* 2009;84(2):269-277. doi:10.1097/ACM.0b013e3181938a45.
19. Godthelp J, Muntinga M, Niessen T, Leguit P, Abma T. Self-care of Caregivers: Self-Compassion in a Population of Dutch Medical Students and Residents. *Med Ed Publish.* 2020;9:222. doi:10.15694/mep.2020.000222.1.
20. Schwill S, Bugaj TJ, Rentschler A, Nikendei C, Szecsenyi J, Krug K. Effects of an educational compact intervention in self-care – a mixed methods study with postgraduate trainees in primary care. *BMC Prim Care.* 2023;24(1):124. doi:10.1186/s12875-023-02074-w.
21. Kravits K, McAllister-Black R, Grant M, Kirk C. Self-care strategies for nurses: A psycho-educational intervention for stress reduction and the prevention of burn out. *Appl Nurs Res.* 2010;23(3):130-138. doi:10.1016/j.apnr.2008.08.002.
22. Chirico F, Batra K, Batra R, Oztekin GG, Ferrari G, Crescenzo P, et al. Spiritual Well-Being and Burnout Syndrome in Healthcare: A Systematic Review. *J Health Soc Sci.* 2023;8(1):13-32. doi:10.19204/2023/sprt2.
23. Shapiro SL, Brown KW, Biegel GM. Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Train Educ Prof Psychol.* 2007;1(2):105-115. doi:10.1037/1931-3918.1.2.105.
24. Richards K, Campenni C, Muse-Burke J. Self-care and Well-being in Mental Health Professionals: The Mediating Effects of Self-awareness and Mindfulness. *J Ment Health Couns.* 2010;32(3):247-264. doi:10.17744/mehc.32.3.0n31v88304423806.
25. Aeschbach VM, Fendel JC, Schmidt S, Göritz AS. A tailored mindfulness-based program for resident physicians: A qualitative study. *Complement Ther Clin Pract.* 2021;43:101333. doi:10.1016/j.ctcp.2021.101333.
26. Real K, Fields-Elswick K, Bernard AC. Understanding Resident Performance, Mindfulness, and Communication in Critical Care Rotations. *J Surg Educ.* 2017;74(3):503-512. doi:10.1016/j.jsurg.2016.11.010.
27. Finkelstein C, Brownstein A, Scott C, Lan YL. Anxiety and stress reduction in medical education: an intervention. *Med Educ.* 2007;41(3):258-264. doi:10.1111/j.1365-2929.2007.02685.x.
28. Finistrella M, Luchina E. The effect of a Mindfulness-based stress reduction program on the mental health of a sample of Italian healthcare professionals: A quasi-experimental study design. *G Ital Psicol Med Lav.* 2024;4(1):27-40. doi:10.69088/2024/THFF4.

29. Cook-Cottone CP, Guyker WM. The Development and Validation of the Mindful Self-Care Scale (MSCS): an Assessment of Practices that Support Positive Embodiment. *Mindfulness*. 2018;9(1):161-175. doi:10.1007/s12671-017-0759-1
30. Cook-Cottone CP. Incorporating positive body image into the treatment of eating disorders: A model for attunement and mindful self-care. *Body Image*. 2015;14:158-167. doi:10.1016/j.bodyim.2015.03.004
31. Wiebe ER, Kaczorowski J, MacKay J. Why are response rates in clinician surveys declining? *Can Fam Physician*. 2012;58(4):e225-e228.
32. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Ability of the Physician Well-Being Index to Identify Residents in Distress. *J Grad Med Educ*. 2014;6(1):78-84. doi:10.4300/JGME-D-13-00117.1.
33. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Utility of a Brief Screening Tool to Identify Physicians in Distress. *J Gen Intern Med*. 2013;28(3):421-427. doi:10.1007/s11606-012-2252-9.
34. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606-613. doi:10.1046/j.1525-1497.2001.016009606.x.
35. Sun Y, Kong Z, Song Y, Liu J, Wang X. The validity and reliability of the PHQ-9 on screening of depression in neurology: a cross-sectional study. *BMC Psychiatry*. 2022;22(1):98. doi:10.1186/s12888-021-03661-w.
36. Keim SM, Mays MZ, Williams JM, Serido J, Harris RB. Measuring wellness among resident physicians. *Med Teach*. 2006;28(4):370-374. doi:10.1080/01421590600625320.
37. IBM SPSS Statistics for Windows. Published online 2016.
38. IBM SPSS Statistics for Windows. Published online 2013.
39. Hayes AF. Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. Third edition. The Guilford Press; 2022.
40. Raj KS. Well-Being in Residency: A Systematic Review. *J Grad Med Educ*. 2016;8(5):674-684. doi:10.4300/JGME-D-15-00764.1.
41. Finistrella M, Flores P, Frediani G. Animal-assisted therapy in patients affected by schizophrenia and schizophrenic-related disorders: A scoping review. *Adv Med Psychol Public Health*. 2024;1(2):53-61. doi:10.5281/zenodo.10632991.
42. Gharib M, Borhaninejad V, Rashedi V. Mental health challenges among older adults. 2024;1(3):106-107. doi:10.5281/zenodo.10899226.
43. Szadejko K, Scarcella C, Fioravanzo RE, Cadei L, Bonometti S, Goglioni R, et al. The impact of the COVID-19 pandemic on mental well-being of healthcare workers at Lago di Garda hospitals, Northern Italy. *G Ital Psicol Med Lav*. 2021;1(2):206-224. Doi: 10.69088/2021/THMP7.
44. Rizzo A, Alfa R, Carlotta V, Sturniolo G, Trazzi L, Viola F. Burnout, decision-making and coping among healthcare workers: How the world was before the COVID-19 pandemic. *G Ital Psicol Med Lav*. 2022;2(2):105-116. Doi: 10.69088/2022/BRNT3.
45. Cacciatori I, D'Auria C, Bruneri A, Rozza S. Prevalence of burnout syndrome among newly hired healthcare workers in Italy before and during the COVID-19 pandemic in Italy: A comparative cross-sectional study. *G Ital Psicol Med Lav*. 2021;1(2):225-237. Doi: 10.69088/2021/PRVL8.
46. Crescenzo P, Tarchi L, Rizzo A. Prevalence of Burnout Syndrome among volunteer psychologists providing psychological support in Italy during the COVID-19 pandemic: The role of workload. *G Ital Psicol Med Lav*. 2024;4(2):131-139. Doi: 10.69088/2024/BRNT5.
47. Chirico F. Navigating global challenges in the workplace: Innovative strategies for combating burnout, preventing workplace, and enhancing psychosocial well-being. 2024;1(3):108-109. doi:10.5281/ZENODO.10897920.
48. Chirico F, Sacco A, Ferrari G. "Total Worker Health" strategy to tackle the COVID-19 pandemic and future challenges in the workplace. *J Health Soc Sci*. 2021;6:452-457. doi:10.19204/2021/ttlw1.
49. Lakhani R, Sharma M. Global health: A priority that persists. 2025;2(2):78-80. doi:10.5281/zenodo.12738127.
50. Chirico F, Khabbache H, Rizzo A, Nucera G, Yıldırım M, Batra K, et al. Bridging ethics and spirituality in healthcare policies for a holistic response to climate change, new pandemics and global health challenges: A call to action. *Adv Med Psychol Public Health*. 2024;1(4):170-173. doi:10.5281/zenodo.11068942.
51. Castellini G, Tarchi L, Cassioli E, Ricca V, Abbate Daga G, Aguglia A, et al. The interplay between mentalization, personality traits and burnout in psychiatry training: Results from a large multicenter controlled study. *Acta Psychiatr Scand*. 2024;149(3):177-194. doi:10.1111/acps.13649.

52. Chirico F, Rizzo A. Tackling mental health disorders, burnout, workplace violence, post-traumatic stress disorders amidst climate change, and new global challenges: The crucial role of emotional management education. *Adv Med Psychol Public Health*. 2024;2(1):5-7. doi:10.5281/zenodo.11248392.
53. Sharma M. A protocol for assessing the readiness for practicing introspective meditations (manan dhyana) as a toll for reduction of stress among high-stress occupations. *G Ital Psicol Med Lav*. 2021;1(1):105-116. doi: 10.69088/2021/PRTC11.
54. Chirico F. The importance of moral clarity and humanity in advancing medical research. *Adv Med Psychol Public Health*. 2025;2(2):76-77. Doi: 10.5281/zenodo.12737550.



© 2024 by the authors. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).