

Research Article

Wellness Promotion Strategies, Hope, Trait Mindfulness and Psychological Distress in Family Medicine Residents

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Abstract

Background and objectives: Residency is a time of incredible learning possibilities, but it also involves high levels of stress exposure. Recent national attention has been given to the demands associated with residency as well as the mental health of resident physicians. The overwhelming body of research however, has focused primarily on medical students and attending physicians and there is a paucity of research related to resident health. This study set out to analyze mental health symptoms associated with resident stress and the strength-based coping mechanisms employed by individual residents during their training.

Methods: Seventy-two family medicine residents were surveyed in the current study. Residents completed standardized measures of personal wellness, hope, and mindfulness, as well as a single measure that assessed depression, anxiety and stress, via an on-line survey software system.

Results: There were significant negative correlations between hope, mindfulness and wellness promotion strategies. SEM results indicated that Mindfulness ($\beta = -.34$, 95%CI = $-.57, -.05$, $P = .01$) was the most significant and reliable predictor of psychological distress.

Conclusions: Residency training programs must prioritize resident well-being. Reinforcing healthy behaviors that promote positive coping, self-care and resilience will benefit the physician which in turn, will help to preserve the essential qualities of good health care practice such as empathy and compassion, present time orientation and hope and faith when faced with adversity.

INTRODUCTION

Research suggests that resident physicians experience considerable psychological distress during residency and this may persist even after graduation. For example, family medicine physicians have among the highest levels of burnout and burnout rates appear to be worsening with time. The findings of one study indicated that in 2011, approximately 51% of family medicine physicians reported significant levels of burnout, and this increased to 63% by 2014 [1].

Resident physicians may be more vulnerable to developing psychological problems such as depression, anxiety, substance abuse, and suicidal behavior because of chronic stressors that tax their coping resources during residency training [2-4]. Possibly secondary to the stigma surrounding mental health, residents will likely underreport their symptoms and may complete their entire residency without receiving needed supports. However, this practice comes at a significant cost to the individual, the healthcare system (e.g., lost revenue, liability due to increased medical errors) and ultimately to the patients and families served. For example, research suggests that empathy, arguably one of the most essential elements of patient-centered care, is

compromised as a result of physician burnout and its associated symptoms (e.g., fatigue, depression, and insomnia).⁵

The majority of studies in the empirical literature have focused almost exclusively on psychological distress with either physicians or medical students, and substantially less so on residents. Schwenk theorized that the lack of empirical studies with residents occur because, "... residents in general are busier, more overwhelmed, more fatigued, more sleep deprived than either medical students or practicing physicians, and [therefore] less accessible for surveys or interviews [6]. "An additional limitation to these studies however is that they are primarily deficit driven which has overshadowed the innumerable strengths inherent in each and every individual such as resilience, spirituality and hope.

Hope is best understood as a human strength that promotes intentional thinking and leads to adaptive actions [7-9]. It is often conceptualized as a goal-directed cognitive process that is based on three specific factors: goals [mental targets to which one's actions are driven towards across time], agency [one's perceived determination about both starting and continuing to make progress in the direction of a specific path] and pathways

[actively making plans or constructing alternate routes for achieving goals] [10]. To date, there is limited research that has examined hope among residents as a cognitive strategy that has the potential to promote health, well-being and resiliency. One study found a significant relationship between medical errors and burnout and reported that hope decreased medical errors even after accounting for burnout scores [11]. The extent to which these findings describe more global patterns of resident stress, burnout and coping however is not yet well understood.

Mindfulness studies have suggested that there are significant benefits to attaining a mindful disposition in daily life. According to Nilsson, mindfulness is critical for healthcare providers because mindfulness, "... is to master one's own mind and to disentangle oneself from the chain reactions that usually persistently invade our understanding [and empathy among physicians can be accessed by understanding] impermanence, mental suffering and the constructed nature of the self" [12]. Beach and colleagues established that higher levels of mindfulness resulted in an increased likelihood of engaging in patient-centered medical care and greater use of relational and empathic communication [13]. Similarly, Atanes et al. [14], found that mindfulness scores negatively correlated with perceived stress and negative emotion and positively correlated with life satisfaction and positive emotion. Extending the findings of these two cross-sectional investigations with a longitudinal mindfulness-based stress reduction intervention, Dobkin et al. [15], found significant decreases in post-intervention stress, depression and burnout scores and higher levels of meaningfulness. Though these studies cumulatively suggest that mindfulness has the potential to mediate psychological distress in resident physicians other studies have failed to find similar effects [16].

Research suggests that mindfulness increases spiritual well-being, self-care, positive lifestyle choices, empathy, improved patient-centered care and patient satisfaction [17-19]. Engaging in mindful practice requires intentional reflection of each and every unique patient encounter. Feldman and Christensen [20] suggest that providers contemplate various process questions during patient encounters including "What about my prior experience with this patient (or with other patients) is influencing my thinking and reasoning?" and "What outcomes am I expecting from this clinical situation? Are those expectations reasonable?" The current study takes the position that mindfulness orientation is an inherent trait which offers the potential to significantly strengthen residents' self-care and ability to cope with adversity.

The purpose of the current study was to examine resident physician psychological stress appraisals, conceptualized as a multidimensional construct (stress, anxiety, and depression), and to explore the potential benefits of practicing health promoting behaviors, as well as incorporating positive beliefs and behaviors such as hope and mindfulness. Further, the current study sought to determine whether there were negative correlations between hope and psychological stress levels in a sample of family medicine residents.

METHODS

Participants and procedures

The study was reviewed and approved by the Institutional

Review Board (IRB) of the principal investigator. Additional permissions were granted by the administration and institutional review boards of all participating institutions. We obtained program contact information from the family medicine residency programs New Jersey Residency Network list of Directors. Interested residents completed all study materials such as informed consent, demographic questionnaire and psychometric instruments through a secure web-based survey system (Qualtrics). Surveys were counterbalanced to control for priming and/or order effects. All measures are summarized in Table 1.

Statistical analysis

We calculated Cronbach's alphas for hope, mindfulness, wellness promoting strategies scales as well as for the DASS-21 scale and subscales. We then tested potential group differences on all measures by PGY year, gender, and race/ethnicity.

Spearman ρ correlations were calculated for age, hope, wellness promotion strategies, mindfulness, and depression, anxiety and stress (scale total and subscales). We also computed correlations for each wellness strategy with depression, anxiety, and stress scores.

To test the main hypothesis, that resident wellness, mindfulness and hope, would negatively predict psychological distress, we used structural equation modeling. We began the analysis with the original raw scores and tested for significance using the maximum likelihood method. We then re-tested the model with 95%bias-corrected accelerated bootstrapping with 1,000 random samples, to determine whether the model could be replicated in the theoretical population. All data were analyzed with SPSS (version 24 for Windows) and the Structural Equation Modeling (SEM) program AMOS.

RESULTS

Out of 105 residents that were eligible to participate, 72 reliably completed all measures (69% response rate). Results of internal consistency analysis revealed that all psychometric instruments had strong reliability ($\alpha > .70$; Table 2). The average resident was 33 years-old (+ - 3.14y). Resident characteristics are reported in Table 3. Fifty-two percent identified as male and 48% female. The majority of residents in the current study reported their race/ethnicity as Asian or Pacific Islander (50%) followed by White (25%), Hispanic/Latino (8%) and Black/African American (3%). Thirteen percent identified "other" as their racial/ethnic group. With respect to PGY, 47% were PGY-1's, 31% PGY-2's, and 22% PGY-3's.

The results of Mann-Whitney U tests on demographic variables revealed that Hope scores were statistically higher for men than for women ($U = 285.50, p = .015$). For race/ethnicity, significant differences emerged for DASS-21 total ($\chi^2[4] = 9.773, p=.045$), hope ($\chi^2[4] = 14.522, p=.006$) and mindfulness ($\chi^2[4] = 9.589, p=.048$). Mean rank scores are summarized in Table 2. Post hoc analysis (Dunn-Bonferroni) revealed that both Asian/Pacific Islander and White residents reported significantly higher levels of psychological distress than Hispanic's. White residents also reported higher distress than those that identified as "other." Conversely, they had among the lowest levels of dispositional mindfulness.

Table 1: Psychometric Instruments.

Measure	Number of Items and Response Format	Sample Items
Wellness Promotion Strategies ^a	16 items 0 (not important to me) to 3(essential)	"I focus on what is most important to me in life" "I find meaning in my work"
Mindful Attention Awareness Scale ^b	15 items 1 (almost always) to 6 (almost never)	"I find myself preoccupied with the future or the past" "I find myself doing things without paying attention"
Adult Hope Scale ^c	12 items 1 (definitely false) to 8 (definitely true).	"There are lots of ways around any problem" "I've been pretty successful in life."
Depression, Anxiety, and Stress Scale ^d	21 items 0(never) to 3(almost always)	"I felt I wasn't worth much as a person" [Depression] "I felt I was close to panic" [Anxiety] "I tended to over-react to situations"[stress]

^aShanafelt TD, West C, Zhao X, Novotny P, Kolars J, Habermann MD, Sloan J. Relationship between increased personal well-being and enhanced empathy among internal medicine residents. *Journal of General Internal Medicine.* 2005; 20: 559-564.
^bBrown KW, Ryan, R.M. The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology.* 2003; 84: 822-848.
^cSnyder CR, Harris C, Anderson JR, Holleran SA, Irving LM, Sigmon ST, et al. The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology.* 1991; 60: 570-585.
^dLovibond SH, Lovibond PF Manual for the Depression Anxiety Stress Scales, second edition. Sydney: Psychology Foundation. 1995.

Table 2: Internal Consistency for Study Measures.

Scale/Subscale	Cronbach's alpha
Adult Hope Scale	.88
MAAS	.92
Wellness Promotion Strategies	.82
DASS-21	.95
Depression	.89
Anxiety	.85
Stress	.89

Abbreviations: MAAS: Mindful Attention Awareness Scale
 DASS-21, Depression, Anxiety, Stress Scale

Table 3: Resident Characteristics and Associations with Hope, Mindfulness, Wellness Promotion Strategies and Psychological Distress.

		Hope	Mindfulness	Wellness	DASS-21
Race/Ethnicity	%	M	M	M	M
White	25	35.07*	20.6*	28.03	37.7*
Hispanic/Latino	8	52.1*	25.7	36	15.2*
Black/African-American	3	44.25	47*	50.5	16.75
Asian/Pacific Islander	50	23.68*	32.78*	27.73	32.47*
Other	13	30.56*	39.38*	37.06	22.63*
Sex					
Men	52	35.79	30.73	27.56	27.5
Women	48	24.84	30.26	33.64	33.71
PGY year					
PGY-1	47	29.11	31.2	30.11	26.02
PGY-2	31	29.25	28.67	30.5	31.53
PGY-3	22	30.65	27.12	26.85	33.92

M: Mean Rank scores
 Abbreviations: DASS-21, Depression, Anxiety, Stress Scale
 Race/ethnicity and PGY year group comparison's based on Kruskal Wallis H test
 Sex comparison based on Mann Whitney U test

All residents in the current study reported that focusing on what is important in life was essential to their well-being (Table 4). Other wellness promoting strategies that were endorsed by residents included finding meaning in work, protecting time with loved ones, maintaining a positive outlook, and having a meaningful approach to understanding life and death. The least used wellness strategies were participating in psychological services, reflective writing, and mindfulness based activities such as meditation.

Spearman correlation results that examined the relationships between age, components of psychological distress (depression, anxiety and stress) and hope, mindfulness and wellness promotion strategies are summarized in Table 4. Depression negatively correlated with hope ($r = -.30$), mindfulness ($r = -.44$) and wellness promotion strategies ($r = -.30$). In addition, lower levels of self-reported stress correlated with higher levels of hope ($r = -.25$), mindfulness ($r = -.53$) and wellness scores ($r = -.28$). There was a significant relationship between anxiety and mindfulness ($r = -.31$), which indicates that residents with higher levels of mindfulness experienced lower levels of stress.

We ran additional correlations to study the relationships between the individual wellness promotion strategies and

anxiety, depression and stress (see Table 5). Residents that reported higher levels of meaning in life (e.g., "I focus on what is most important to me in life") had less depression ($r = -.51$), anxiety ($r = -.37$) and stress ($r = -.36$). Those that had higher positive outlook scores reported lower stress ($r = -.33$). When residents endorsed higher levels of adaptive coping with death, they also tended to experience lower levels of stress ($r = -.53$) and anxiety ($r = -.42$). Exercising healthy lifestyle choices also tended to correspond with less psychological distress. For example, greater perceived work-life balance, seeking social support from colleagues, family and friends, and participating in recreational activities negatively correlated with psychological distress (r 's = $-.35$ to $-.43$; see Table 5).

Structural equation modeling results of main study hypothesis

The results of the SEM models, which tested the prediction that hope, mindfulness and wellness promotion strategies would negatively predict psychological distress levels revealed significant benefits to well-being. Mindfulness ($b = -.23$, $P = .001$, $\beta = -.34$) and Wellness Promotion Strategies ($b = -.40$, $P = .017$, $\beta = -.26$) were significant predictors of psychological distress. When

Table 4: Spearman Rho Correlations for Variables of Interest.

	Age	Depression	Anxiety	Stress	Hope	Mindfulness
Age	-					
Depression	0.04	-				
Anxiety	0.19	.76**	-			
Stress	0.01	.86**	.74**	-		
Hope	0.06	-.30*	-0.19	-.25*	-	
Mindfulness	-0.05	-.44**	-.31**	-.53**	0.12	-
Wellness	-0.06	-.30*	-0.18	-.28*	.26*	0.16

Note: Wellness: Wellness Promotion Strategies
 * $p < .01$
 ** $p < .05$

Table 5: Spearman rho correlations between resident wellness strategies and depression, anxiety and stress.

Resident Wellness Strategies	%	Depression	Anxiety	Stress
I find meaning in my work	95	-.03	.08	-.11
I protect time away from work with my spouse, family, and friends	91	-.31	-.40**	-.29
I focus on what is most important to me in life	100	-.51**	-.37*	-.36*
I try to take a positive outlook on things	90	-.24	-.28	-.33*
I take vacations	79	-.09	.03	-.10
I participate in recreation/ hobbies/exercise	82	-.31	-.40**	-.31
I talk with family, significant other, or friends about how I am feeling	66	-.43**	-.35*	-.30
I have developed an approach/ philosophy to dealing with patients' suffering and death	91	-.51	-.42**	-.53**
I incorporate a life philosophy stressing balance in my personal and professional life	84	-.38*	-.23	-.40*
I look forward to retirement	57	-.07	.11	-.12
I discuss stressful aspects of work with colleagues	79	-.43**	-.38*	-.30
I nurture the religious/spiritual aspects of myself	68	-.14	.07	-.16
I am involved in non-patient care activities (e.g., research, education, administration)	45	-.13	.06	-.21
I engage in contemplative practices or other mindfulness activities such as meditation, narrative medicine, or appreciative inquire, etc.	39	-.15	-.01	-.26
I engage in reflective writing or other journaling technique	18	-.21	-.10	-.22
I have regular meetings with a psychologist/psychiatrist to discuss stress	16	.03	-.02	-.04

* $p < .01$
 ** $p < .05$

the data were tested for generalizability using bootstrapping methods however, only Mindfulness ($\beta = -.34$, 95%CI = $-.57, -.05$, $P = .009$) remained significant and replicable. Resident wellness ($\beta = -.26$, 95%CI = $-.53, .04$, $P = .10$) and hope ($\beta = -.12$, 95%CI = $-.36, .10$, $P = .26$) were not significant predictors in the final multivariate model.

DISCUSSION

The current study investigated resident strengths and adaptive behaviors that promote wellness, self-care, and positive coping, and explored the relationship of these factors with reports of psychological distress. In our study, many of the wellness strategies that were endorsed by residents were cognitive in nature. In other words, the wellness enhancing strategies tended to involve healthy thinking habits, which in turn, negatively correlated with symptoms of anxiety, stress, and depression. Interestingly, very few participants used psychotherapy as a mechanism of support (16%). One plausible explanation for these findings is that participants may have experienced mental health stigma as residents may feel shame and embarrassment and may associate psychological and psychiatric services with severe mental illness or as a service that is only needed for their patients. Alternatively, these results may also stem from limited program and institutional resources.

Shanafelt and colleagues studied resident wellness strategies, in a sample of internal medicine residents, and compared whether resident wellness strategies were associated with high versus low mental well-being. The authors found that in addition to work-life balance, residents that reported nurturing their religious and/or spiritual needs, had higher levels of well-being [13]. In the current study with family medicine residents, the large majority of residents did not use religion and spirituality as a coping strategy and it failed to correlate with psychological distress. It is plausible that this pattern of results may explain the lack of significant findings for the constructs of hope in the current study. For example, McCullough, Emmons, and Tsang reported correlations with hope, spirituality, and religion (e.g., prayer, personal relationship with a higher power), suggesting that these factors may be fundamental mediators [16]. Despite the low endorsement of contemplative practices (39%), mindfulness, as measured by the MAAS instrument, negatively predicted stress. This suggests that higher order consciousness, that is, an appreciation for the subtle moment-to-moment thoughts and feelings experienced by residents, substantially promotes wellness by reducing stress and mental distraction, which in turn, may enhance active listening, and improve attention to self, as well as patient, care needs. From this perspective, upsetting events are contextualized as brief, temporary, and transient, which cause less interference to resident performance and wellness.

It is important to recognize that the institutional culture cannot be underestimated since resident well-being is not solely the responsibility of the resident. Feldman and Christensen discuss the shared responsibility of resident well-being through "sustainable enterprises that value the health and well-being of all their workers" [15]. Thus, for residents to be well in their professional training and to become healthy independent practitioners, systems must work to establish and maintain an

environment of trust, safety, and respect. This aspect of residency training may often be overlooked because of the systemic demands that affect administration, day-to-day practices and therefore physicians and residents. Thus, resident and physician well-being, and the culture of the department/program/institution, should be monitored on an ongoing basis to ensure that residents are provided with an environment that is both challenging, as well as growth promoting.

LIMITATIONS

The results of the current study should be understood within the context of the study limitations. The sample size was small which may increase risk for type II statistical errors. In some cases, variables approached significance and it is possible that these variables were correlates of the outcome variables; however, given the sample size, the effects may not have been fully observable. The current study was limited to resident physicians. Future research should also explore administrator-physician-resident distress and health promoting behaviors, to better understand the role of systems and common practices that sustain high rates of burnout and poor psychological outcomes among practitioners.

CONCLUSION

Medical education has begun to more carefully monitor the impact of resident well-being as it is understood to affect processes at the micro (e.g., patient-resident interaction) and macro (e.g., economy, healthcare policies) level. Interestingly, this study more aptly focused on the residents' ability to manage stress and what paradigm they use to cope with these stressors. It was determined that mindfulness significantly correlated with well-being. Programs should continue to work to promote dedicated time and attention to mindfulness informed resident wellness activities and the current study provides meaningful findings that can be applied to such an endeavor.

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