

# Physician Burnout and the Calling to Care for the Dying: A National Survey

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## Abstract

**Background:** Physician burnout raises concerns over what sustains physicians' career motivations. We assess whether physicians in end-of-life specialties had higher rates of burnout and/or calling to care for the dying. We also examined whether the patient centeredness of the clinical environment was associated with burnout. **Methods:** In 2010 to 2011, we conducted a national survey of US physicians from multiple specialties. Primary outcomes were a validated single-item measure of burnout or sense of calling to end-of-life care. Primary predictors of burnout (or calling) included clinical specialty, frequency of encounters with dying patients, and patient centeredness of the clinical environments ("My clinical environment prioritizes the need of the patient over maximizing revenue"). **Results:** Adjusted response rate among eligible respondents was 62% (1156 of 1878). Nearly a quarter of physicians (23%) experienced burnout, and rates were similar across all specialties. Half of the responding physicians (52%) agreed that they felt called to take care of patients who are dying. Burned-out physicians were more likely to report working in profit-centered clinical environments (multivariate odds ratio [OR] of 1.9; confidence interval [CI]: 1.3-2.8) or experiencing emotional exhaustion when caring for the dying (multivariate OR of 2.1; CI: 1.4-3.0). Physicians who identified their work as a calling were more likely to work in end-of-life specialties, to feel emotionally energized when caring for the dying, and to be religious. **Conclusion:** Physicians from end-of-life specialties not only did not have increased rates of burnout but they were also more likely to report a sense of calling in caring for the dying.

## Keywords

burnout, calling, religion, hospice, palliative medicine, patient-centered care

## Introduction

Over the last 2 decades, physician burnout has generated sustained attention among researchers and policy-makers. Characterized by a syndrome of emotional exhaustion, cynicism, and work inefficacy, burnout has been associated with poorer well-being,<sup>1</sup> suicidal ideation,<sup>2</sup> decreased professionalism,<sup>3</sup> and compromised patient care.<sup>4,5</sup> These concerns have led some to describe burnout as the tip of the proverbial iceberg that masks a deeper underlying "erosion of the soul."<sup>6,7</sup> Given the negative impact of burnout, this burgeoning area of research raises the question of what sustains the long-term career retention of health-care professionals, particularly for those involved in end-of-life care.<sup>8-12</sup>

In the midst of this increased attention to physician well-being, the concept of calling has attracted increasing empirical interest as vocational researchers attempt to understand how physicians draw meaning and satisfaction from their work.<sup>13-16</sup> One recent study of primary care physicians and psychiatrists found that those with a sense of calling in their work may be experiencing higher levels of career satisfaction, more durable clinical commitments, and resilience from burnout.<sup>17</sup> Some have suggested that clinical environments driven by insidious

values (profit-centered vs patient-centered) erode physician motivation and well-being.<sup>18,19</sup> Thus, when the organizational values of a workplace align closely with what their physicians understand themselves to be called to do, such patient-centered environments could help to mitigate against physician burnout.<sup>20</sup> However, not much is known about the effect of clinical environments on burnout and physician motivation, particularly for those caring for patients at the end of life.

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In this national study of practicing US physicians from multiple specialties, we examined the levels of burnout and the motivation of being called to care for the dying, focusing on physicians who care for a disproportionate number of patients at the end of life. We hypothesized that due to the high emotional demands of such work, physicians who care for more patients at the end of life would report higher levels of burnout. Moreover, we tested the hypothesis that physicians who perceive their work environment to be profit centered (vs patient centered) would be more likely to report burnout. We also examined whether physicians who work in end-of-life specialties are more likely to report a sense of calling and whether the emotional experience of these physicians (being energized vs exhausted) also predicted a sense of calling to such work. Finally, given findings from prior studies between religion and a sense of calling in one's overall practice of medicine,<sup>21</sup> we assessed whether religious characteristics were also associated with a sense of calling to care for the dying.

## Methods

In 2010 to 2011, we mailed a confidential, self-administered questionnaire<sup>22</sup> to a stratified random sample of 2016 practicing US physicians aged 65 years or younger. The sample was generated from the American Medical Association (AMA) Physician Masterfile, a database intended to include all US physicians, regardless of membership in the AMA. We selected 1248 physicians from the specialties of internal medicine, family medicine, general practice, cardiology, and nephrology. We then selected an oversample of 768 physicians in specialties that care for disproportionate numbers of patients at the end of life (hospice and palliative care, geriatrics, oncology specialties, and pulmonary/critical care). In addition, to increase the power of other analyses that investigate the association of physicians' self-reported religious affiliation with medical practice and end-of-life issues, we used validated lists of ethnic surnames to increase the number of physicians with minority religious perspectives.<sup>22</sup> Physicians received up to 3 separate mailings, with a US\$20 cash incentive in the first and an offering of US\$30 for participation in the third. All data were double keyed, cross-compared, and corrected against the original questionnaires. The study was approved by the institutional review board of the University of Chicago.

## Questionnaire

Outcome measures focused on burnout and physicians' sense of calling to care for patients at the end of life. First, we included a validated single-item burnout query<sup>23</sup> (see Table 1) that has been used extensively in previous studies of primary care physicians and cancer care workers who treat patients at the end of life (see Table 1 for burnout categorization).<sup>8,24,25</sup> To assess the sense of calling to care for patients at the end of life, we asked respondents to note their agreement or disagreement with the statement: "I feel called to take care of patients who are dying"

**Table 1.** US Physicians' Emotional Well-Being, Burnout, and Calling to Care for the Dying.<sup>a</sup>

Item	Response Category	n	Percent <sup>a</sup>
After taking care of patients who are dying, how often do you feel <i>emotionally exhausted</i> ? <sup>c</sup>	Never	26	2
	Rarely	151	14
	Sometimes	453	44
	Often	369	34
After taking care of patients who are dying, how often do you feel <i>emotionally energized</i> ? <sup>c</sup>	Always	66	6
	Never	345	32
	Rarely	364	37
	Sometimes	252	23
Burnout <sup>d</sup>	Often	79	8
	Always	7	<1
	Not burned out (1-2)	863	77
I feel called to take care of patients who are dying	High burnout ( $\geq 3$ )	256	23
	Agree strongly	169	13
My clinical environment prioritizes the need of the patient over maximizing revenue	Agree somewhat	410	39
	Disagree somewhat	314	29
	Disagree strongly	207	19
	Agree strongly	373	34
My clinical environment prioritizes the need of the patient over maximizing revenue	Agree somewhat	410	38
	Disagree somewhat	212	19
	Disagree strongly	97	9

<sup>a</sup>Bivariate results are unweighted n values and survey design-adjusted percentages of US physicians who responded.

<sup>b</sup>Because of rounding error, percentages do not all add up to 100%.

<sup>c</sup>This question was asked of respondents who had previously reported "yes" to the question: "do you ever take care of patients who are dying?"

<sup>d</sup>Respondents were categorized as burnout if they agreed to either of the statements: (3) "I am definitely burning out and have one or more symptoms of burnout, such as physical and emotional exhaustion," (4) "The symptoms of burnout that I'm experiencing won't go away. I think about frustration at work a lot," (5) "I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or may need to seek some sort of help." Respondents were categorized as not burned out if they agreed to either of the statements: (1) "I am definitely burning out and have one or more symptoms of burnout, such as physical and emotional exhaustion," (2) "Occasionally I am under stress, and I don't always have as much energy as I once did, but I don't feel burned out."

(agree strongly, agree somewhat, disagree somewhat, disagree strongly).

Primary predictors included measures that indicated their exposure to clinical encounters in caring for the dying and their clinical specialty. To assess the frequency of physicians' clinical exposure with dying patients, we asked respondents: "In the past 12 months, approximately how many of your patients ... have died?" (mean: 20.2, standard deviation [SD]: 37.1). Responses to this category were evenly dichotomized into 2 groups (low census of dying patients = 10 or fewer; high census = 11 or more). For clinical specialty, we created a specialty variable that divided all physicians into "general" versus "end-of-life" specialties. Physicians with a specialty of internal medicine, family medicine, general practice, cardiology, and nephrology were categorized as "general" specialties; physicians with a specialty of hospice and/or palliative care, geriatrics, oncology specialties, and pulmonary/critical care were categorized as "end-of-life" specialties. As a sensitivity test, we conducted a *t* test between the frequency of

clinical exposure to dying patients and our specialty variable (general vs end-of-life specialties). We found that physicians from end-of-life specialties saw a higher mean of dying patients (mean: 29.9, 95% confidence interval [CI]: 25.9-34.0) than physicians from general specialties (mean 13.9, 95% CI: 11.4-16.4) with a  $P$  value  $<.001$ .

We also assessed physicians' perceptions of the patient centeredness of their clinical environments by asking: "My clinical environment prioritizes the need of the patient over maximizing revenue" (agree strongly, agree somewhat, disagree somewhat, disagree strongly). Agreement with this item was categorized as having a patient-centered clinical environment (vs profit centered).

We included controls for our multivariate models: basic demographics (age, gender, race/ethnicity, immigration history, and region) and religious characteristics (religious affiliation and importance of religion). We categorized religious affiliation as none/no religious affiliation, Hindu, Jewish, Muslim, Roman Catholic/Eastern Orthodox, Evangelical Protestant, non-Evangelical Protestant, and other. We measured the importance of religion with the question, "How important would you say your religion is in your own life?" Responses were categorized as not important (includes those who indicated "not applicable/I have no religion," fairly important, very important, or most important).

### Statistical Analysis

Stratum weights were included to account for the oversampling of ethnic surnames and stratification by specialty, as well as to account for modest differences in response rates by surname group, gender, and US versus foreign medical school graduation. The method of case weighting—widely used in population-based research<sup>26</sup>—enabled us to adjust for sample stratification and variable response rates in order to generate national estimates for the population of US physicians. Respondents who left items blank were omitted from the analyses of those items. First, we generated population estimates for responses to each survey measure. Next, we used the Pearson  $\chi^2$  test and multivariable logistic regression to evaluate the differences in responses to the criterion measures by each of the predictors. All analyses take into account the survey design and case weights and were performed using Stata/SE 12.0 statistical software.

## Results

### Survey Response

Of the 2016 potential respondents to the survey, 138 were ineligible because they had retired or could not be contacted because of incorrect addresses. Among eligible physicians, the response rate was 62% (1156 of 1878). Response rates differed somewhat by respondent characteristics: 60% (756 of 1266) for males versus 65% (400 of 612) for females, 65% (765 of 1179) for US graduates versus 56% (391 of 699) for foreign

**Table 2.** Respondent Characteristics of 1156 Practicing US Physicians, 2010 to 2011.

Demographic Characteristics	No. (%) <sup>a</sup>	Religious Characteristics	No. (%) <sup>a</sup>
<b>Gender</b>		<b>Religious affiliation</b>	
Male	756 (65)	No affiliation	129 (12)
Female	400 (35)	Hindu	80 (7)
<b>Race/ethnicity</b>		Jewish	109 (10)
White non-Hispanic	758 (66)	Muslim	110 (10)
Black non-Hispanic	43 (4)	Roman Catholic/ Eastern Orthodox	295 (26)
Asian	237 (21)	Evangelical Protestant	85 (8)
Hispanic/Latino	47 (4)	Non-evangelical Protestant	256 (23)
Other	65 (6)	Other	55 (5)
<b>Immigration history</b>		<b>Importance of religion</b>	
Born in the United States	721 (63)	Not important/not applicable	307 (27)
Immigrated to the United States	424 (37)	Fairly important	351 (31)
<b>Age</b>		Very important	331 (29)
24-37	295 (26)	Most important	139 (12)
38-45	284 (25)		
46-54	282 (24)		
55-65	295 (26)		
<b>Region</b>			
Northeast	279 (24)		
South	378 (33)		
Midwest	283 (24)		
West	216 (19)		
<b>Physician specialty<sup>b</sup></b>			
General specialties	700 (61)		
End-of-life specialties	456 (39)		
<b>Number of patients who died in last 12 months<sup>c</sup></b>			
Low census (10 or fewer)	592 (51)		
High census (>10)	564 (49)		

Abbreviations: CI, confidence interval; SD, standard deviation.

<sup>a</sup>Because of rounding error, percentages may not add up to 100%. Because of partial nonresponse, numbers do not all add up to 1156.

<sup>b</sup>General specialties were categorized as internal medicine, family medicine, general practice, cardiology, and nephrology; end-of-life specialties were categorized as hospice and palliative care, geriatrics, oncology specialties, and pulmonary/critical care. As a sensitivity test, we conducted a  $t$  test between the frequency of clinical exposure to dying patients and our specialty variable (general vs end-of-life specialties). We found that physicians from end-of-life specialties saw a higher mean of dying patients (mean: 29.9, 95% CI: 25.9-34.0) than physicians from general specialties (mean: 13.9, 95% CI: 11.4-16.4) with a  $P$  value  $<.001$ .

<sup>c</sup>Mean 20.2 (SD 37.1).

graduates, and 54% (125 of 230) for Asian surnames versus 51% (159 of 311) for Arabic, 68% (65 of 96) for Jewish, and 65% other (807 of 1241; all  $P$  values  $<.05$ ). Stratum weights were adjusted for these differences. Response rates did not differ significantly by age or region. Respondent characteristics are displayed in Table 2.

As seen in Table 1, nearly a quarter of physicians (23%) experienced high burnout. More than half of the responding

**Table 3.** Burnout Rates Among US Physicians, 2010 to 2011.<sup>a</sup>

	Burnout, N (%)	Bivariate, P Value ( $\chi^2$ )	Multivariable OR (95% CI)
Physician specialty			
General specialties	167 (24)	.195	Referent
End-of-life specialties	89 (20)		0.8 (0.6-1.1)
Number of patients who died in last 12 months			
Low census (10 or fewer)	135 (24)	.418	Referent
High census (>10)	121 (22)		0.9 (0.6-1.3)
Clinical environment			
Patient-centered	151 (20)	<b>&gt;.001</b>	Referent
Profit-centered	100 (33)		1.9 (1.3-2.8) <sup>b</sup>
Emotionally exhausted in caring for the dying			
Never/rarely/sometimes	112 (19)	<b>&gt;.001</b>	Referent
Often or always	129 (31)		<b>2.1 (1.4-3.0)<sup>b</sup></b>
Emotionally energized in caring for the dying			
Never/rarely/sometimes	229 (25)	<b>.049</b>	Referent
Often or always	10 (13)		0.4 (0.2-1.1)

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>a</sup>These data present burnout rates among 1156 US physicians in 2010 to 2011. Multivariable analyses are adjusted for survey design and include physician age, gender, region, race/ethnicity, immigration history, religious affiliation, and importance of religion.

<sup>b</sup> $P < .001$ .

physicians agreed either strongly (13%;  $n = 169$ ) or somewhat (39%;  $n = 410$ ) that they felt called to take care of patients who are dying. Nearly three-fourths of physicians reported working in patient-centered (vs profit-centered) clinical environment (72%;  $n = 783$ ).

Table 3 displays burnout rates among US physicians by demographic and professional characteristics. When we limited our analysis to the specialties of geriatrics/palliative care/hospice, we obtained a burnout rate of 16% (pulmonary/critical care = 24%, oncology specialties = 20%,  $P$  value nonsignificant). Moreover, we did not find statistically significant increases in burnout rates among physicians who predominantly care for the dying (as assessed by census level of number of patients who died in the last 12 months or by their clinical specialty). Notably, physicians who indicated that they work in a profit-centered clinical environment were more likely to report burnout (33% vs 20% patient centered; multivariate odds ratio [OR] of 1.9; CI: 1.3-2.8). Physicians who reported that they often or always experienced emotional exhaustion after caring for the dying were also more likely to report burnout (31% vs 19% never/rarely/sometimes; multivariate OR of 2.1; CI: 1.4-3.0). Physicians who reported that they were often or always emotionally energized after caring for the dying were less likely to report burnout (19% vs 25% never/rarely/sometimes,  $P = .049$ ), but this association did not remain statistically significant in our multivariate models after adjusting for

**Table 4.** US Physician's Sense of Calling to Care for the Dying, 2010 to 2011.<sup>a</sup>

	"I feel called to take care of patients who are dying" (agree strongly or somewhat)		
	Bivariate n (%)	P	Multivariate OR (95% CI)
Physician specialty			
General specialties	327 (50)	<b>.002</b>	Referent
End-of-life specialties	252 (60)		<b>1.6 (1.2-2.0)<sup>b</sup></b>
Number of patients who died in last 12 months			
Low census (10 or fewer)	279 (49)	.180	Referent
High census (>10)	300 (54)		1.2 (0.9-1.6)
Clinical environment			
Patient-centered	404 (51)	.632	Referent
Profit-centered	158 (53)		1.1 (0.8-1.5)
Emotionally exhausted in caring for the dying			
Never/rarely/sometimes	331 (53)	.927	Referent
Often or always	220 (54)		1.0 (0.7-1.4)
Emotionally energized in caring for the dying			
Never/rarely/sometimes	480 (52)	<b>.001</b>	Referent
Often or always	64 (75)		<b>2.7 (1.4-5.2)<sup>b</sup></b>
Religious affiliation			
No affiliation	48 (41)	<b>.004</b>	Referent
Hindu	39 (46)		1.5 (0.7-3.3)
Jewish	45 (38)		0.7 (0.4-1.4)
Muslim	44 (45)		1.4 (0.6-3.0)
Roman Catholic	151 (50)		1.4 (0.8-2.3)
Evangelical Protestant	62 (69)		<b>3.1 (1.5-6.3)<sup>b</sup></b>
Non-evangelical Protestant	158 (60)		<b>2.1 (1.3-3.7)<sup>b</sup></b>
Other	29 (52)		1.6 (0.7-3.5)
Importance of religion			
Not important	127 (41)	<b>.001</b>	Referent
Fairly important	177 (49)		1.5 (1.0-2.2)
Very important	185 (58)		<b>2.0 (1.4-3.0)<sup>c</sup></b>
Most important	88 (62)		<b>2.6 (1.5-4.3)<sup>c</sup></b>

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>a</sup>Bivariate results are unweighted  $n$  values and survey design-adjusted percentages of physicians who responded. Multivariable results are OR (95% CI) from survey design-adjusted logistic regression, adjusted for physician age, gender, region, race/ethnicity, and immigration history.

<sup>b</sup> $P < .01$ .

<sup>c</sup> $P < .001$ .

covariates. We did not find a significant association between having a sense of calling and burnout.

In Table 4, physicians in end-of-life specialties were more likely than those in general specialties to report a sense of calling to care for the dying (60% vs 50% general specialties; multivariate OR: 1.6, 95% CI: 1.2-2.0), as were those who reported often or always feeling emotionally energized in caring for the dying (75% vs 52% never/rarely/sometimes; multivariate OR: 2.7; 95% CI: 1.4-5.2). Physicians who were more religious, as measured by religious affiliation and importance of religion, were more likely to report a sense of calling in caring for patients who are dying. Compared to those with no religious affiliation, Protestants—both evangelical and non-

evangelical—were more likely to agree strongly or somewhat with the statement: “I feel called to take care of patients who are dying” (multivariate OR: 3.1, 95% CI: 1.5-6.3 for evangelical Protestants; and multivariate OR: 2.1, 95% CI: 1.3-3.7 for non-evangelical Protestants). Likewise, compared to those physicians who reported religion as not being important in their own life, those who reported viewing religion as either very important or most important in their own life were also more likely to view caring for patients who are dying as a calling (multivariate OR: 2.0, 95% CI: 1.4-3.0 for religion very important and multivariate OR: 2.6, 95% CI: 1.5-4.3 for religion most important).

## Discussion

This national survey found that nearly a quarter of US physicians from across all specialties reported burnout, but those in end-of-life specialties were not necessarily reporting higher burnout rates. However, physicians from end-of-life specialties were more likely to endorse care for dying patients as a “calling.” In contrast to a previous study,<sup>17</sup> we did not find in this study that those with a sense of calling to care for the dying were less likely to report burnout. Although a sense of calling may be sustaining the careers of some physicians, the overall experience of burnout suggests that many physicians face weakening motivation in the care of patients, irrespective of clinical specialty. This finding confirms concerns that physicians who engage in end-of-life care may be facing emotionally stressful challenges when addressing the complex and varied needs of patients and caregivers often in moments of crisis.<sup>12</sup> Physicians who report a calling to this field may already possess inherent coping abilities to such emotional challenges, while obtaining intrinsic meaning from such work that further enhances their resilience from emotional stressors that lead to burnout.<sup>27</sup> Our data suggest that the emotional experiences of physicians when caring for the dying “may still be a relevant area” of further investigation for understanding the experiences of burnout in end-of-life care.

In contrast to a recent study of hospice and palliative medicine clinicians which found a burnout rate of 60% among physicians,<sup>12</sup> we found a substantially lower burnout rate in our study (20%) through our sampling of end-of-life specialties (which also included geriatrics, pulmonary/critical care, and oncology specialties). This difference may be partially explained by nonresponse and sampling bias in the former study and by the different burnout measure we used in our study<sup>8,23</sup> (which correlates more with the emotional exhaustion subscale in the Maslach Burnout Inventory). As a result, our burnout measure and our categorization of end-of-life specialties in this study may be contributing to lower prevalence of burnout. Physician burnout is a complex multidimensional experience likely affected by both intrinsic and extrinsic factors that are dynamically shifting in this health-care environment,<sup>6</sup> so tailored self-management strategies are important to maintain well-being and resilience among those who care for patients at the end of life.

It is perhaps encouraging that 72% of US physicians report working in a clinical environment that they perceive as prioritizing the needs of patients over maximizing revenue. Nevertheless, those who do work in a profit-oriented environment appear to experience higher rates of burnout. Such environments may undermine physician motivation in subtle, chronic ways that lead to lower career retention and poorer sense of well-being in the long run. Jain and Cassel<sup>18</sup> described how hospital policies have often been designed to adjust or control physician behavior based on a society’s views regarding physician motivation. They suggest that physicians today may be perceived and treated more as knaves (self-interested egoists) or pawns (disempowered passive recipients) rather than knights (altruists). If so, physicians who aim to be “knights” in their practice of medicine may struggle to maintain motivation in bureaucratic, corporate organizational settings in which they are treated as revenue-generating “pawns.” Further research should explore how negative extrinsic factors in the clinical environment affect physician well-being and whether that effect might be moderated by a sense of calling.

In this national survey of practicing US physicians, we found that nearly half of physicians from various specialties report a calling to care for the dying, and those from end-of-life specialties are more likely to endorse such a calling. In our study, calling-oriented physicians also tend to report frequently feeling more emotionally energized after taking care of the dying. One recent study of medical students found that those students who endorsed a stronger sense of calling were more likely to endorse a higher commitment to their specialty.<sup>28</sup> Moreover, similar to previous studies that examined the association between religion and a sense of calling to medicine in general,<sup>16,21</sup> this study also found that physicians who identified themselves as being religious were also more likely to report a sense of calling to care for the dying. This finding may be explained by the traditional importance that religious communities have placed in caring for the sick and the terminally ill.<sup>29</sup> In particular, Protestant physicians were more likely to endorse a calling to care for the dying, potentially reflecting the cultural and theological influence of a Christian tradition that has historically encouraged the pursuit of a vocational ministry as a response to a religious calling to medicine.<sup>21,30</sup>

Though originally a concept with religious and theological roots, the concept of calling has evolved into a broader reference to any strong sense of purpose that keeps motivation alive, nourishes a proper sense of self-fulfillment, and enables one to work with a vision—namely, that the impact of one’s work extends beyond the individual realm to benefit others, society, or a transcendent figure.<sup>31</sup> Some suggest that callings may even change over time based on personal and work situations.<sup>32</sup> Given our finding that physicians who work in more profit-centered clinical environments are more likely to report burnout, longitudinal studies may help explain how a sense of calling may degrade over time under the effect of erosive environmental factors and whether calling in such environments might still be sustained by tailored approaches that focus on strengthening one’s intrinsic motivations toward work.<sup>27,33</sup>

How can a sense of calling be sustained in the next generation of physicians—who enter medical schools with varying levels of extrinsic or intrinsic motivations to care for patients at the end of life? Kinghorn and colleagues have argued that medical education “should be characterized by open pluralism: a commitment to explore, understand, and hear the voices of the particular moral communities that constitute our culture.”<sup>34</sup> Part of this commitment could include exposure to various traditions in medicine and the moral communities from which medical students are deriving and cultivating their sense of calling. Given our findings among practicing US physicians, medical educators might also consider how to invite students who are considering end-of-life careers to connect their practices of medicine to larger structures of meaning and significance in their future work as physicians.<sup>35</sup>

There are several limitations to this study. First, nonresponders may differ from responders in ways that bias our results. Second, though we used single-item measures of calling and burnout in order to reduce survey burden,<sup>31,36</sup> these measures have been less extensively tested than more widely used instruments in the literature.<sup>6,37,38</sup> Nevertheless, assessments of the single-item measure of burnout produced similar results to the Maslach Burnout Inventory, particularly on the emotional exhaustion subscale.<sup>8,23</sup> Moreover, as with any study that depends on self-report, physicians’ responses only imperfectly reflect their actual opinions or behaviors, and responses are susceptible to social desirability, consistency, and recall biases. Lastly, because this was a cross-sectional study, we cannot make causal inferences between our associations. For example, it may be that burned-out physicians are less likely to view their clinical work environment favorably and less likely to maintain a level of resilience that over time predispose them to emotional exhaustion when caring for the dying.<sup>39</sup> On the other hand, the direction of causality may be that emotional stressors directly cause burnout,<sup>6</sup> whether these stressors emerge from a clinical encounter with a dying patient or from more systemic-level stressors specific to profit-centered clinical environments. Moreover, the association between calling and end-of-life specialty may reflect either a professional trend that those with a sense of calling are self-selecting into certain specialties because of a calling<sup>40</sup> or that end-of-life physicians who care for the dying are developing a sense of calling as result of their clinical experience. Longitudinal studies are needed to establish the directionality of these associations.

## Conclusion

In this national study of US physicians, we found that physicians from end-of-life specialties did not report increased rates of burnout compared to other specialties, but they were more likely to report a sense of calling in caring for the dying. Burned-out physicians also appear to be working in profit-centered clinical environments and report feeling emotionally exhausted when caring for the dying. Calling-oriented physicians report feeling energized by their work and may also be integrating their religious commitments with their care for

patients at the end of life. Sustainable careers among physicians may be related to their intrinsic motivations toward their work and the perceived patient centeredness of their clinical environments.

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## References

1. Roberts DL, Shanafelt TD, Dyrbye LN, West CP. A national comparison of burnout and work-life balance among internal medicine hospitalists and outpatient general internists. *J Hosp Med.* 2014;9(3):176-181.
2. Dyrbye LN, Thomas MR, Massie FS, et al. Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med.* 2008; 149(5):334-341.
3. Dyrbye LN, Massie FS Jr, Eacker A, et al. Relationship between burnout and professional conduct and attitudes among US medical students. *JAMA.* 2010;304(11):1173-1180.
4. Shanafelt TD, Balch CM, Bechamps G, et al. Burnout and medical errors among American surgeons. *Ann Surg.* 2010;251(6): 995-1000.
5. Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med.* 2012;172(18):1377-1385.
6. Maslach C, Goldberg J. Prevention of burnout: new perspectives. *Appl Prev Psychol.* 1998;7(1):63-74.
7. Spickard A Jr., Gabbe SG, Christensen JF. Mid-career burnout in generalist and specialist physicians. *JAMA.* 2002;288(12): 1447-1450.
8. Hansen V, Girgis A. Can a single question effectively screen for burnout in Australian cancer care workers? *BMC Health Serv Res.* 2010;10:341.
9. Kearney MK, Weininger RB, Vachon ML, Harrison RL, Mount BM. Self-care of physicians caring for patients at the end of life: “Being connected . . . a key to my survival”. *JAMA.* 2009; 301(11):1155-1164, E1151.
10. van Mol MM, Kompanje EJ, Benoit DD, Bakker J, Nijkamp MD. The prevalence of compassion fatigue and burnout among health-care professionals in intensive care units: a systematic review. *PLoS One.* 2015;10(8):e0136955.
11. Back AL, Steinhauser KE, Kamal AH, Jackson VA. Building resilience for palliative care clinicians: an approach to burnout prevention based on individual skills and workplace factors [published online February 26, 2016]. *J Pain Symptom Manage.* 2016.

12. Kamal AH, Bull JH, Wolf SP, et al. Prevalence and predictors of burnout among hospice and palliative care clinicians in the U.S. *J Pain Symptom Manage*. 2016;51(4):690-696.
13. Rasinski KA, Lawrence RE, Yoon JD, Curlin FA. A sense of calling and primary care physicians' satisfaction in treating smoking, alcoholism, and obesity. *Arch Int Med*. 2012;172(18):1423-1424.
14. Duffy RD, Manuel RS, Borges NJ, Bott EM. Calling, vocational development, and well being: a longitudinal study of medical students. *Journal of Vocational Behavior*. 2011;79(2):361-366.
15. Curlin FA, Serrano KD, Baker MG, Carricaburu SL, Smucker DR, Chin MH. Following the call: how providers make sense of their decisions to work in faith-based and secular urban community health centers. *J Health Care Poor Underserved*. 2006;17(4):944-957.
16. Curlin FA, Dugdale LS, Lantos JD, Chin MH. Do religious physicians disproportionately care for the underserved? *Ann Fam Med*. 2007;5(4):353-360.
17. Yoon JD, Daley BM, Curlin FA. The association between a sense of calling and physician well-being: a national study of primary care physicians and psychiatrists [published online January, 2016]. *Acad Psychiatry*. 2016.
18. Jain SH, Cassel CK. Societal perceptions of physicians: knights, knaves, or pawns? *JAMA*. 2010;304(9):1009-1010.
19. Hinami K, Whelan CT, Wolosin RJ, Miller JA, Wetterneck TB. Worklife and satisfaction of hospitalists: toward flourishing careers. *J Gen Intern Med*. 2012;27(1):28-36.
20. Bardes CL. Defining "patient-centered medicine". *N Engl J Med*. 2012;366(9):782-783.
21. Yoon JD, Shin JH, Nian AL, Curlin FA. Religion, sense of calling, and the practice of medicine: findings from a national survey of primary care physicians and psychiatrists. *South Med J*. 2015; 108(3):189-195.
22. Program on Medicine and Religion. Clinical decision making in advanced illness and end of life care. 2015; Web site. <https://pmr.uchicago.edu/page/clinical-decision-making-advanced-illness-and-end-life-care>. Accessed December 10, 2015.
23. Rohland BM, Kruse GR, Rohrer JE. Validation of a single-item measure of burnout against the Maslach Burnout Inventory among physicians. *Stress and Health*. 2004;20(2):75-79. Updated July 20, 2016.
24. Dolan ED, Mohr D, Lempa M, et al. Using a single item to measure burnout in primary care staff: a psychometric evaluation. *J Gen Intern Med*. 2015;30(5):582-587.
25. Linzer M, Manwell LB, Williams ES, et al. Working conditions in primary care: physician reactions and care quality. *Ann Intern Med*. 2009;151(1):28-36, W26- W 29.
26. Groves RM, Fowler FJ, Couper MP, Lepkowski JM, Singer E, Tourangeau R. *Survey Methodology*. Hoboken, NJ: John Wiley & Sons, Inc; 2004.
27. Swetz KM, Harrington SE, Matsuyama RK, Shanafelt TD, Lyckholm LJ. Strategies for avoiding burnout in hospice and palliative medicine: peer advice for physicians on achieving longevity and fulfillment. *J Palliat Med*. 2009;12(9):773-777.
28. Goodin JB, Duffy RD, Borges NJ, Ulman CA, D'Brot VM, Manuel RS. Medical students with low self-efficacy bolstered by calling to medical speciality. *Perspect Med Educ*. 2014;3(2):89-100.
29. Dugdale LS. *Dying in the Twenty-First Century: Toward a New Ethical Framework for the Art of Dying Well*. Cambridge, MA: The MIT Press; 2015.
30. Imber JB. *Trusting Doctors: The Decline of Moral Authority in American Medicine*. Princeton, NJ: Princeton University Press; 2008.
31. Dik BJ, Duffy RD. Calling and vocation at work: definitions and prospects for research and practice. *The Counseling Psychologist*. 2009;37(3):424-450.
32. Hall DT, Chandler DE. Psychological success: when the career is a calling. *J Organ Behav*. 2005;26(2):155-176.
33. Ratanawongsa N, Howell EE, Wright SM. What motivates physicians throughout their careers in medicine? *Compr Ther*. 2006; 32(4):210-217.
34. Kinghorn WA, McEvoy MD, Michel A, Balboni M. Professionalism in modern medicine: does the emperor have any clothes? *Acad Med*. 2007;82(1):40-45.
35. Tilburt J, Geller G. Viewpoint: the importance of worldviews for medical education. *Acad Med*. 2007;82(8):819-822.
36. Maslach C, Jackson SE, Leiter MP. *Maslach Burnout Inventory Manual*. 3rd ed. Palo Alto, CA: Consulting Psychologists Press; 1996.
37. Duffy RD, Bott EM, Allan BA, Torrey CL, Dik BJ. Perceiving a calling, living a calling, and job satisfaction: testing a moderated, multiple mediator model. *J Couns Psychol*. 2012;59(1):50-59.
38. Duffy RD, Bott EM, Torrey CL, Webster GW. Work volition as a critical moderator in the prediction of job satisfaction. *J Career Assess*. 2013;21(1):20-31.
39. Dunn LB, Iglewicz A, Moutier C. A conceptual model of medical student well-being: promoting resilience and preventing burnout. *Acad Psychiatry*. 2008;32(1):44-53.
40. Borges NJ, Manuel RS, Duffy RD. Speciality interests and career calling to medicine among first-year medical students. *Perspect Med Educ*. 2013;2(1):14-17.