

# Impact of Work on Personal Relationships and Physician Well-being



Mickey T. Trockel, MD, PhD; Liselotte N. Dyrbye, MD, MHPE, FACP;  
Colin P. West, MD, PhD; Christine A. Sinsky, MD; Hanhan Wang, MPS;  
Lindsey E. Carlasare, MBA; Michael Tutty, PhD, MHA; and Tait D. Shanafelt, MD

## Abstract

**Objective:** To assess the impact of work on personal relationships (IWPR) by specialty and demographic variables in a national sample of physicians, to assess the association between the IWPR and burnout, and to determine the effect of adjusting for IWPR on the risk of burnout associated with being a physician.

**Methods:** Analysis was conducted of data from a representative sample of US physicians surveyed between November 20, 2020, and March 23, 2021, and from a probability-based sample of other US workers. IWPR and burnout were measured with published assessments.

**Results:** Of the 7360 physicians who responded to the survey, 6271 (85.2%) completed the IWPR assessment. In multivariable analysis, moderate or higher IWPR was associated with female sex (odds ratio [OR], 1.26; 95% CI, 1.11 to 1.43), married vs single (OR, 0.59; 95% CI, 0.48 to 0.71), and emergency medicine (OR, 1.93; 95% CI, 1.43 to 2.60) or physical and rehabilitative medicine (OR, 1.67; 95% CI, 1.12 to 2.50) vs internal medicine subspecialty. Physicians were more likely than workers in other fields (OR, 2.65; 95% CI, 2.33 to 3.02) to endorse the statement “In the past year, my job contributed to me feeling more isolated or detached from the people who are important to me” as at least moderately true. After adjustment for responses to this statement, work hours, and demographic characteristics, being a physician was not associated with the risk of burnout.

**Conclusion:** IWPR is associated with burnout. Adjustment for IWPR eliminated the observed difference in burnout between physicians and workers in other fields. Interventions that identify and mitigate work practices that have a negative impact on physicians’ personal relationships and interventions that support affected individual physicians are warranted.

© 2024 THE AUTHORS. Published by Elsevier Inc on behalf of Mayo Foundation for Medical Education and Research. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>) ■ Mayo Clin Proc. 2024;99(10):1567-1576

The effects of close personal relationships on health are well documented. Meta-analysis results indicate loneliness, social isolation, and living alone are associated with 26%, 29%, and 32% increases in odds of mortality, respectively, with the association between social connection and mortality most pronounced for those younger than 65 years.<sup>1</sup> Poor social relationships are associated with a 29% and 32% increase in risk of coronary artery disease incidence and stroke, respectively,<sup>2</sup> and with more than twice the risk of new-onset depression.<sup>3</sup>

For physicians, long work hours and occupational distress may diminish attention

to cultivating and nurturing personal relationships.<sup>4,5</sup> Although several research reports have documented challenges with work-life integration<sup>4-6</sup> and work-home conflict<sup>7-12</sup> in physicians, less is known about physicians’ perceptions of the impact of work on their personal relationships. One single-center study found that adverse effects of work on personal relationships were associated with physician burnout and unsolicited complaints from their patients.<sup>13</sup> In this study, adverse impact of work on personal relationships (IWPR) was a more robust predictor of unsolicited patient complaints than burnout, low professional fulfillment, depression, anxiety, or sleep-related

From the Department of Psychiatry and Behavioral Sciences (M.T.T.), WellMD & WellPhD (H.W.), and Department of Medicine (T.D.S.), Stanford University School of Medicine, Palo Alto, CA; Department of Medicine, University of Colorado School of Medicine, Aurora, CO (L.N.D.); Department of Medicine (C.P.W.) and Department of Quantitative Health Sciences (C.P.W.), Mayo Clinic, Rochester, MN; and Professional Satisfaction and Practice Sustainability, American Medical Association, Chicago, IL (C.A.S., L.E.C., M.T.).

impairment.<sup>13,14</sup> The objectives of this study were to assess variability in IWPR in physicians by specialty and demographic variables and to assess the association between IWPR and burnout in a national sample of physicians. In addition, we compared the IWPR in physicians with the IWPR in workers in other fields and explored the degree to which the higher odds of burnout in physicians compared with workers in other fields is attenuated after adjustment for IWPR.

## METHODS

The methods for this national study are briefly described here and have been published previously.<sup>5</sup> A core study survey was sent by mail to 4000 physicians sampled randomly from the American Medical Association (AMA) Physician Professional Data, previously named the AMA Masterfile. Specialties other than obstetrics and gynecology, family practice, internal medicine, and pediatrics were oversampled to increase the sample size for smaller medical specialties. A \$20 incentive was sent with the initial mailing, followed by a reminder sent 3 weeks later. After 329 surveys were returned undeliverable, the sample size was 3671. An electronic version of the survey was sent to a random sample of 90,000 physicians from the AMA Physician Professional Data. Physicians in fields other than family medicine, general pediatrics, general internal medicine, and obstetrics/gynecology were oversampled to ensure an adequate sample of physicians from each specialty.

An abbreviated 2-page survey was sent with a \$20 incentive to a random sample of 500 physicians who did not respond to the mailed survey and to 500 who did not respond to the electronic survey. After 24 were returned undeliverable, the sample size was 976. A comparison sample of workers in other fields was obtained using a probability-based sample of workers in the US population between the ages of 29 and 65 years using the KnowledgePanel (<https://www.ipsos.com/en-us/solutions/public-affairs/knowledgepanel>).

## Measures

Impact of work on physicians' personal relationships was measured with the Stanford IWPR scale.<sup>13</sup> The scale comprises 4 items, each of which is answered on a 5-point Likert scale from "not at all true" (score = 0) to completely true (score = 4). Items are answered separately and share the same question stem, as follows: "In the past year my job has ..." (1) made it harder for me to nurture existing personal relationships, (2) made it harder for me to develop new meaningful personal relationships, (3) contributed to conflict in my personal relationships, and (4) contributed to me feeling more isolated or detached from the people who are most important to me. The total score is derived by summing the 4-item scores, which renders a range of 0 to 16. In an unpublished analysis using a previously described multisite physician wellness survey data set,<sup>15</sup> an IWPR score of 6 or higher had 70% sensitivity and 74% specificity for predicting concurrent burnout and partitioned the highest IWPR scoring 43% of physicians. A score of 10 partitioned the highest quintile of physicians. We designated IWPR scores of 6 or higher and 10 or higher as moderate and severe IWPR, respectively. Because of cost constraints and to minimize response burden, only item 4, "In the past year my job has contributed to me feeling more isolated or detached from the people who are most important to me," was included in the survey of workers in other fields. This item correlated highly (Spearman  $r = 0.90$ ) with the 4-item IWPR scale in a previously described data set.<sup>15</sup>

Burnout was measured, under license with Mind Garden, Inc, using the Maslach Burnout Inventory (MBI) emotional exhaustion (EE) and depersonalization (DP) scales, which are composed of 9 and 5 items, respectively.<sup>16-18</sup> The MBI items are answered on a 7-point scale from "never" to "every day" scored from 0 to 6 and summed within each domain. The survey also included demographic variables, including sex, age, relationship status, parenting status, hours worked per week,

TABLE 1. Sample of US Physicians—Demographic Characteristics and Impact of Work on Personal Relationships (IWPR)

Characteristics	Physician IWPR respondents, No. (%)		IWPR score, mean (SD)	P value (for difference in mean score by category)
	All 6271	With IWPR $\geq 6^a$		
Sex				
Male	3880 (62.0)	1579 (40.7)	5.33 (4.62)	<.001
Female	2372 (37.9)	1100 (46.4)	5.92 (4.49)	
Other	4 (0.1)	3 (75.0)	10.75 (7.37)	
Missing	15	6 (40.0)	5.20 (4.89)	
Age, years				
Median (interquartile range)	54.0 (44.0-62.0)			<.001
<35	215 (3.6)	97 (45.1)	5.49 (4.25)	
35-44	1319 (21.8)	699 (53.0)	6.74 (4.63)	
45-54	1587 (26.3)	790 (49.8)	6.25 (4.67)	
55-65	1782 (29.5)	721 (40.5)	5.36 (4.46)	
65+	1139 (18.9)	284 (24.9)	3.54 (3.88)	
Missing	229	97 (42.4)	5.50 (4.78)	
Relationship status				
Single	668 (10.7)	364 (54.5)	6.82 (4.83)	<.001
Married	5213 (83.4)	2122 (40.7)	5.34 (4.52)	
Partnered	292 (4.7)	161 (55.1)	6.63 (4.52)	
Widowed/widower	77 (1.2)	29 (37.7)	4.43 (4.32)	
Missing	21	12 (57.1)	7.00 (5.52)	
Parenting status				
No children	932 (14.9)	470 (50.4)	6.18 (4.62)	<.001
Youngest child <5 years	739 (11.8)	376 (50.9)	6.59 (4.66)	
Youngest child 5-12 years	1115 (17.9)	594 (53.3)	6.61 (4.64)	
Youngest child 13-18 years	883 (14.2)	401 (45.4)	5.95 (4.67)	
Youngest child 19-22 years	661 (10.6)	255 (38.6)	5.23 (4.43)	
Youngest child $\geq 23$ years	1908 (30.6)	575 (30.1)	4.13 (4.12)	
Missing	33	17 (51.5)	7.00 (5.20)	
Hours worked per week				
Median (interquartile range)	50.0 (40.0-60.0)			<.001
<40 hours	1189 (19.1)	278 (23.4)	3.54 (3.86)	
40-49 hours	1463 (23.5)	512 (35.0)	4.58 (4.21)	
50-59 hours	1510 (24.2)	686 (45.4)	5.81 (4.39)	
60-69 hours	1324 (21.2)	732 (55.3)	6.85 (4.59)	
70-79 hours	347 (5.6)	219 (63.1)	7.80 (4.89)	
$\geq 80$ hours	398 (6.4)	246 (61.8)	7.95 (4.83)	
Missing	40	15 (37.5)	5.20 (5.05)	
Call frequency				
None	2321 (37.5)	810 (34.9)	4.69 (4.41)	<.001
1	1492 (24.1)	701 (47.0)	6.01 (4.56)	
$\geq 2$	2378 (38.4)	1143 (48.1)	6.12 (4.66)	
Missing	80	34 (42.5)	5.59 (4.24)	
Specialty				
Anesthesiology	282 (4.5)	133 (47.2)	5.96 (4.81)	<.001
Dermatology	155 (2.5)	62 (40.0)	5.12 (4.76)	
Emergency medicine	341 (5.5)	165 (48.4)	6.29 (4.57)	
Family medicine	433 (6.9)	196 (45.3)	5.85 (4.52)	
General surgery	209 (3.4)	94 (45.0)	5.83 (4.56)	
General surgery subspecialty	491 (7.9)	211 (43.0)	5.75 (4.80)	
Internal medicine—general	430 (6.9)	206 (47.9)	6.09 (4.68)	

Continued on next page

TABLE 1. Continued

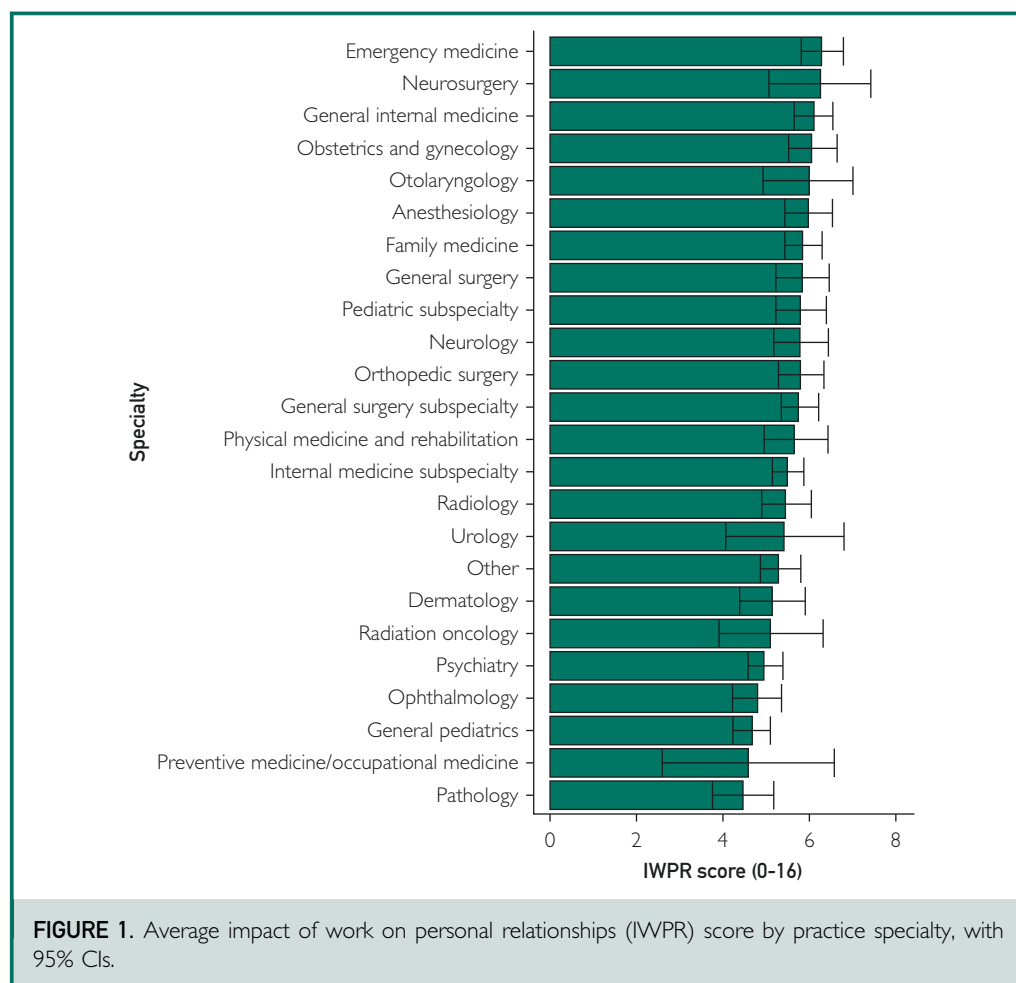
Characteristics	Physician IWPR respondents, No. (%)		IWPR score, mean (SD)	P value (for difference in mean score by category)
	All 6271	With IWPR $\geq 6^a$		
Specialty, continued				
Internal medicine subspecialty	611 (9.8)	266 (43.5)	5.50 (4.53)	
Neurology	220 (3.5)	108 (49.1)	5.79 (4.69)	
Neurosurgery	62 (1.0)	33 (53.2)	6.24 (4.64)	
Obstetrics and gynecology	257 (4.1)	125 (48.6)	6.06 (4.52)	
Ophthalmology	264 (4.2)	92 (34.8)	4.78 (4.62)	
Orthopedic surgery	313 (5.0)	136 (43.5)	5.79 (4.69)	
Otolaryngology	57 (0.9)	25 (43.9)	5.96 (3.91)	
Other	394 (6.3)	159 (40.4)	5.30 (4.74)	
Pathology	163 (2.6)	51 (31.3)	4.46 (4.56)	
Pediatrics—general	324 (5.2)	113 (34.9)	4.65 (3.97)	
Pediatric subspecialty	222 (3.6)	97 (43.7)	5.79 (4.40)	
Physical medicine and rehabilitation	146 (2.3)	72 (49.3)	5.67 (4.53)	
Preventive medicine/occupational medicine	24 (0.4)	10 (41.7)	4.58 (4.67)	
Psychiatry	501 (8.0)	179 (35.7)	4.98 (4.46)	
Radiation oncology	52 (0.8)	21 (40.4)	5.10 (4.32)	
Radiology	243 (3.9)	104 (42.8)	5.46 (4.52)	
Urology	38 (0.6)	15 (39.5)	5.42 (4.16)	
Missing	349	15 (38.5)	4.77 (4.45)	
Primary practice setting				
Private practice	3559 (57.0)	1515 (42.6)	5.53 (4.61)	<.001
Academic medical center	1753 (28.1)	809 (46.1)	5.86 (4.52)	
Veterans hospital	139 (2.2)	52 (37.4)	4.80 (4.44)	
Active military practice	36 (0.6)	18 (50.0)	6.61 (4.41)	
Other	754 (12.1)	283 (37.5)	5.05 (4.60)	
Missing	30	11 (36.7)	5.43 (4.57)	-

<sup>a</sup>This column shows percentage of IWPR  $\geq 6$  within each demographic and professional characteristics category.

call frequency, medical specialty, and practice setting. Overall burnout was defined by a high score on either the EE scale ( $\geq 27$ ) or DP scale ( $\geq 10$ ). Because of cost constraints and to minimize response burden, the survey used to assess workers in other fields included a single item from the EE scale and a single item from the DP scale that have demonstrated strong correlation with the full scales<sup>19</sup> as well as strong and consistent associations with key outcomes.<sup>20</sup> As in previous analyses,<sup>5</sup> burnout was defined as having symptoms “at least weekly” indicated in responses to 1 or both of the EE and DP single items used to compare physicians with workers in other fields.

## Analysis

Cronbach  $\alpha$  was calculated to measure the internal consistency of the IWPR scale. Demographic and professional characteristics of physicians and other US workers were summarized by standard descriptive statistics. The proportion of physicians with an IWPR score of 6 or higher and raw IWPR scores by these characteristics were also summarized. One-way analysis of variance was used to assess the differences in mean IWPR scores across demographic and professional categories. Univariable and multivariable logistic regressions were performed to identify factors associated with IWPR (IWPR  $\geq 6$ ) and burnout and to compare IWPR and burnout between physicians and



other US workers. Statistical significance was set at 2-tailed  $P < .05$ . All analyses were conducted in R (version 4.1.2; R Foundation for Statistical Computing).

## RESULTS

A total of 7360 physicians responded to the survey, including 1123 of 3671 (30.6%) mail survey recipients and 6235 of 90,000 (6.9%) electronic survey recipients. As previously reported,<sup>5</sup> there were no statistically significant differences in burnout or other factors between responders and the sample of initial nonresponders who completed the abbreviated follow-up survey. Demographic characteristics of survey participants were also similar to those of the 897,107 practicing physicians in the AMA Physician Professional Data. Data from the electronic

survey and the mailed survey were pooled for subsequent analyses. Of the 7360 physicians who responded to the survey, 6271 (85.2%) completed the IWPR scale. The characteristics of this sample have been described elsewhere<sup>5</sup> and are summarized in Table 1, which shows 3880 (62.0%) IWPR respondents who reported sex were male, 5213 (83.4%) who reported marital status were married, and 4688 (77.6%) were between the ages of 35 and 65 years. As reported previously,<sup>5</sup> physicians aged 29 to 65 years compared with workers in other fields in the same age range differed by demographic characteristics. Physicians were more likely to be male (62.0% vs 54.4%), older (median age of 51 years vs median age of 50 years), and married (83.4% vs 70.5%) and were more likely to work 60

**TABLE 2. Logistic Regression Model With IWPR as the Dependent Variable and All Demographic Categories in Table 1 Entered as Independent Variables**

Outcome	Variables	OR	P value
IWPR $\geq 6$	Sex female (vs male)	1.26 (1.11-1.43)	<.001
	Age	0.99 (0.98-0.99)	.001
	Relationship status (vs single)		
	Married	0.59 (0.48-0.71)	<.001
	Partnered	1.06 (0.79-1.44)	.69
	Widowed/widower	0.98 (0.55-1.73)	.95
	Have children/age youngest child (vs no children)		
	<5 years	1.15 (0.91-1.45)	.25
	5-12 years	1.41 (1.15-1.73)	.001
	13-18 years	1.05 (0.85-1.3)	.66
	19-22 years	0.8 (0.63-1.03)	.08
	>22 years	0.74 (0.58-0.93)	.01
	Hours worked per week (each additional hour)	1.04 (1.03-1.04)	<.001
	No. of nights on-call per week (vs 0)		
	1	1.34 (1.15-1.56)	<.001
	2 or more	1.46 (1.27-1.68)	<.001
	Specialty (vs IM subspecialty)		
	Anesthesiology	1.18 (0.86-1.61)	.30
	Dermatology	1.22 (0.82-1.81)	.33
	Emergency medicine	1.93 (1.43-2.6)	<.001
	Family medicine	1.18 (0.9-1.56)	.23
	General IM	1.18 (0.9-1.56)	.23
	General pediatrics	0.88 (0.65-1.21)	.44
	General surgery	0.75 (0.52-1.07)	.11
	General surgery subspecialty	0.7 (0.54-0.92)	.01
	Neurology	1.24 (0.88-1.75)	.21
	Neurosurgery	1.01 (0.57-1.79)	.98
	Obstetrics and gynecology	0.92 (0.66-1.28)	.63
	Ophthalmology	0.9 (0.65-1.25)	.55
	Orthopedic surgery	0.92 (0.68-1.25)	.59
	Other	0.95 (0.72-1.27)	.75
	Otolaryngology	0.98 (0.53-1.78)	.94
	Pathology	0.59 (0.39-0.88)	.01
	Pediatric subspecialty	0.93 (0.66-1.31)	.67
	PM & R	1.67 (1.12-2.5)	.01
	Preventive medicine/occupational medicine	1.26 (0.48-3.14)	.63
	Psychiatry	1.1 (0.83-1.44)	.51
	Radiation oncology	1.04 (0.53-1.99)	.92
	Radiology	1.09 (0.78-1.52)	.60
	Urology	0.65 (0.32-1.31)	.23
	Practice settings (vs private practice)		
	Academic medical center	0.85 (0.74-0.98)	.02
	Active military practice	0.91 (0.45-1.86)	.80

Continued on next page

hours per week or more (33.2% vs 6.3%) in comparison to workers in other fields.

The IWPR scale demonstrated good internal consistency ( $\alpha = 0.92$ ). The single item included in the survey of workers in other fields correlated highly with the full IWPR scale (Spearman  $r = 0.88$ ) in the sample of responding physicians. There were 1340 (21.4%) respondents with moderate (6 to 9) IWPR and 1329 (21.2%) with high ( $\geq 10$ ) IWPR. There were statistically significant differences ( $P < .001$ ) in IWPR scores across all demographic categories tested, including sex, age category, relationship status, parenting status, work hours, call frequency, and medical practice specialty (see Table 1). Whereas 54.5% of single physicians had an IWPR score of 6 or higher, only 40.7% of married physicians had an IWPR score of 6 or higher. Most (53.0%) physicians working 60 hours or more a week had an IWPR score of 6 or higher. Figure 1 shows the average IWPR of physicians within each specialty.

Multivariable logistic regression results (Table 2) indicate that after adjustment for other variables in the model, women had 26% higher odds of at least moderate IWPR (score  $\geq 6$ ) compared with men (odds ratio [OR], 1.26; 95% CI, 1.11 to 1.43). Being married was associated with 41% lower odds of moderate or high IWPR (OR, 0.59; 95% CI, 0.48 to 0.71) relative to those who were single. Compared with not having any children, having a youngest child between the ages of 5 and 12 years was associated with 41% higher odds of moderate or high IWPR (OR, 1.41; 95% CI, 1.15 to 1.73). Each additional hour worked per week was associated with 4% higher odds of moderate or high IWPR (OR, 1.04; 95% CI, 1.03 to 1.04). Being on-call 1 night a week was associated with 34% greater odds of moderate or high IWPR (OR, 1.34; 95% CI, 1.15 to 1.56). Being on-call 2 or more nights per week was associated with 46% higher odds of moderate or high IWPR (OR, 1.46; 95% CI, 1.27 to 1.68). Compared with physicians with an internal medicine subspecialty, emergency medicine physicians had 93% higher



odds of moderate or high IWPR (OR, 1.93; 95% CI, 1.43 to 2.6), and physical and rehabilitative medicine physicians had 67% greater odds of moderate or high IWPR (OR, 1.67; 95% CI, 1.12 to 2.5).

In analysis of physician-only data, which includes the full EE and DP scales from the MBI, IWPR was associated with overall burnout. In an unadjusted model, moderate IWPR (score of 6 to 9) was associated with 3.97 times the odds of burnout (OR, 3.97; 95% CI, 3.47 to 4.55) compared with physicians with IWPR scores below 6. High negative IWPR (score  $\geq 10$ ) was associated with 14.08 times the odds of burnout (OR, 14.08; 95% CI, 12.1 to 16.43) compared with IWPR scores below 6. In the model adjusted for sex, age, relationship status, parenting status, work hours, call frequency, and medical practice specialty, physicians with moderate IWPR and high IWPR were associated with 3.77 (95% CI, 3.25 to 4.36) and 13.59 (95% CI, 11.48 to 16.14) times the odds of burnout, respectively, compared with physicians with scores below 6. [Figure 2](#) shows the average EE and DP scores of physicians at each score point of the IWPR scale.

Physicians were more likely than workers in other fields to endorse the statement, “In the past year, my job contributed to me feeling more isolated or detached from the people who are important to me.” In an unadjusted model, physicians had 222% greater odds (OR, 3.22; 95% CI, 2.85 to 3.63) of answering that this statement is “moderately true,” “very true,” or “completely true” vs “not at all true” or “somewhat true.” In a multivariable model adjusted for sex, age, relationship status, and hours worked per week, physicians had 165% higher odds of endorsing this statement as at least moderately true (OR, 2.65; 95% CI, 2.33 to 3.02). [Figure 3](#) shows the percentage of physicians compared with workers in other fields who indicate that this statement of IWPR is at least moderately true, stratified by work hour category. Physicians reported a markedly greater IWPR than workers in other fields within each work hour category.

TABLE 2. Continued

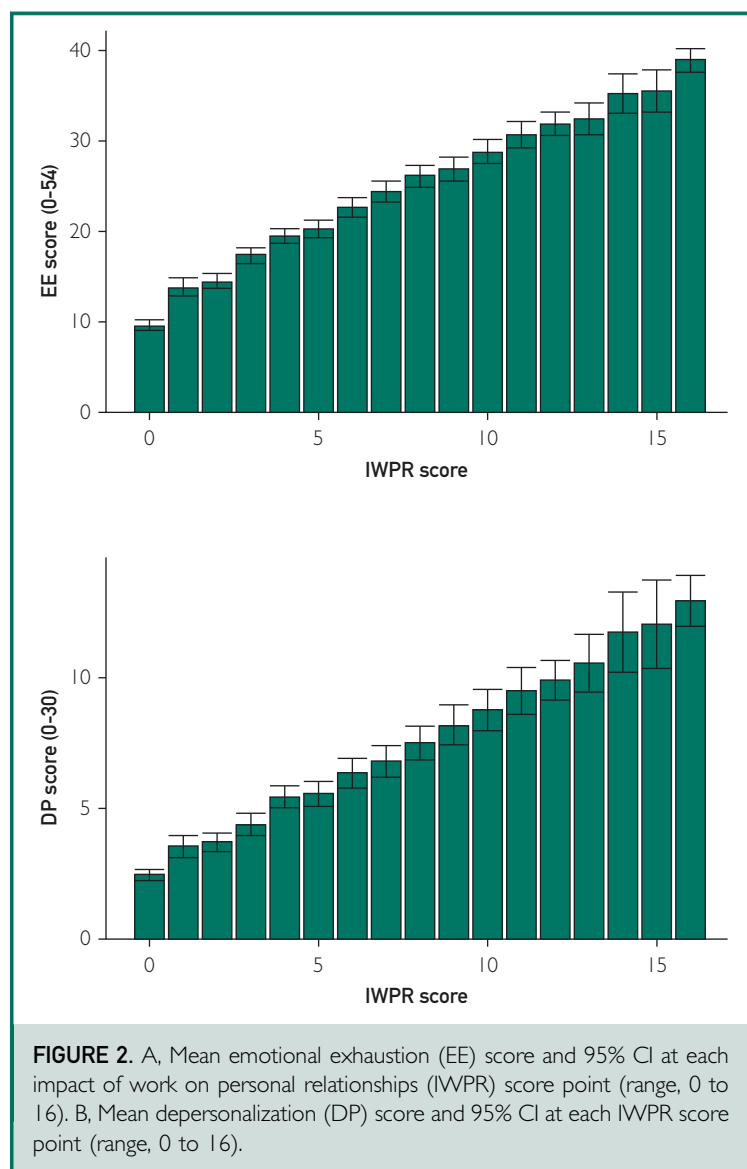
Outcome	Variables	OR	P value
	Veterans hospital	0.81 (0.55-1.18)	.28
	Other	0.88 (0.73-1.06)	.18

IM, internal medicine; IWPR, impact of work on personal relationships; OR, odds ratio; PM & R, physical medicine and rehabilitation.

In an unadjusted model, physicians had 53% higher odds (OR, 1.53; 95% CI, 1.37 to 1.70) of burnout than workers in other fields. After adjustment for sex, age, relationship status, and work hours, physicians still had 40% higher odds (OR, 1.4; 95% CI, 1.25 to 1.57) of burnout compared with workers in other fields. After further adjustment for responses to the single question indicator of IWPR in addition to demographic variables and work hours, physicians no longer had increased odds of burnout compared with workers in other fields (OR, 0.93; 95% CI, 0.82 to 1.06).

## DISCUSSION

We report here a large study evaluating physicians' perceptions of IWPR by practice specialty and demographic variables and comparing IWPR in physicians with that of workers in other fields. We also report on evaluation of how IWPR relates to burnout. In aggregate, more than a third of physicians reported moderate or greater IWPR. In multivariable analysis, women, younger physicians, and those with children aged 5 to 12 years were at greater risk of experiencing moderate or high IWPR. From a professional perspective, higher hours worked and number of nights on-call per week and practicing the specialty of emergency medicine or physical medicine and rehabilitation were associated with greater IWPR. Each 1-point higher IWPR score was associated with an increased risk of EE and DP. Physicians were more likely than workers in other fields to report being isolated or detached from those most important to them during the last year because of work factors after adjustment for personal characteristics and work hours. Notably, the observed higher risk of burnout in physicians relative to workers in other



fields was eliminated after adjustment for demographic characteristics, work hours, and response to a single item from the IWPR scale.

These findings have important implications. Growing evidence links physician burnout to patient care quality<sup>21-25</sup> and economic costs.<sup>26,27</sup> The strong association between IWPR and burnout suggests that further study of the causes and consequences of IWPR in physicians is warranted. In addition, previous research indicating that IWPR in physicians is a more robust predictor of unsolicited complaints from their

patients than other wellness variables<sup>13</sup> suggests that development and evaluation of interventions to prevent and mitigate IWPR in physicians are warranted.

Markedly higher IWPR in physicians than in workers in other fields suggests the issue is a cultural problem in organizations and the profession rather than a problem with individual physicians. A workplace cultural problem calls for organization- and system-level solutions. The US Surgeon General's Office 2023 Advisory titled "Our Epidemic of Loneliness and Isolation" provides helpful guidance to organizations in this regard, calling on organizations to "Put in place policies that protect workers' ability to nurture their relationships outside work, including respecting boundaries between work and non-work time, supporting caregiving responsibilities, and creating a culture of norms and practices that support these policies."<sup>28(p61)</sup>

Organization intervention strategies consistent with these guidelines may include those that optimize workload, enhance team-based care,<sup>29</sup> reduce clerical burden, and improve accuracy of surgical scheduling to enable predictable workday ending times, with in-box coverage systems to allow vacation time unfettered by work responsibilities.<sup>30,31</sup> Our observation that physicians were more likely to have IWPR than workers in other fields, even after stratifying by work hours category, suggests factors other than time demands contribute to elevated IWPR in physicians. A recent study reported that burnout in physicians is associated with concurrent secondary traumatic stress, depression, and anxiety in their spouses and calls for support for physician spouses.<sup>32</sup> In addition to paramount organization-level strategies to mitigate workplace practices and time demands that have a negative impact on physicians' personal relationships, resources to support individual physicians or couples affected by negative IWPR may be helpful to many. Such initiatives should be part of holistic organizational efforts to address characteristics of the culture and practice environment that contribute to clinician well-being.



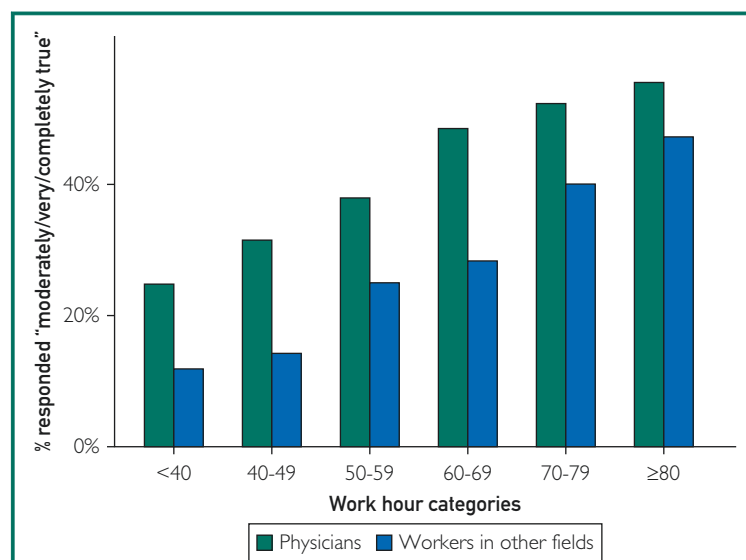
There are several limitations of this study. The timing of this study (2020) was associated with heightened work intensity for several medical specialties and reduced work intensity for some workers in other fields. Causal relationships cannot be determined by cross-sectional associations. In addition, this study assessed the subjective experience of IWPR globally but did not assess the potential differentiating factors that negatively affect personal relationships of physicians with different circumstances, such as those who are single vs those who are married and younger vs older physicians. Although oversampling allowed a greater sample size of less common specialties, there were 5 specialties with fewer than 100 respondents. Additional caution is advised in interpreting observed differences across specialties with smaller sample sizes.

## CONCLUSION

A career as a physician is associated with an elevated risk for negative IWPR. IWPR is associated with an increased risk for burnout, and in this study, adjustment for demographic factors, work hours, and IWPR eliminated the observed difference in burnout between physicians and workers in other fields. Organization-level interventions that identify and mitigate work practices that have a negative impact on physicians' personal relationships, in addition to interventions that support affected individual physicians, are warranted.

## POTENTIAL COMPETING INTERESTS

Dr Trockel reports receiving consultation fees from Marvin Behavioral Health Inc. Drs Trockel, Dyrbye, and Shanafelt report receiving honoraria for presentations and providing advising for health care organizations. Drs Dyrbye and Shanafelt are co-inventors of the Well-being Index instruments. Mayo Clinic holds the copyright for these instruments and has licensed them for use outside of Mayo Clinic. Mayo Clinic pays Drs Shanafelt and Dyrbye a portion of any royalties received. Dr Shanafelt is the co-inventor of the Participatory Management Leadership Index. Mayo Clinic holds the



**FIGURE 3.** Vertical bars showing percentage, stratified by work hour category, of physicians and workers in other fields who responded “moderately true,” “very true,” or “completely true” vs “not at all true” or “somewhat true” to the question, “In the past year, my job contributed to me feeling more isolated or detached from the people who are important to me.”

copyright for this instrument, has licensed it for use outside of Mayo Clinic, and pays Dr Shanafelt a portion of any royalties received. As Section Editor, Dr Shanafelt had no involvement in the peer review of this article and has no access to information regarding its peer review.

**Abbreviations and Acronyms:** **AMA**, American Medical Association; **DP**, depersonalization; **EE**, emotional exhaustion; **IWPR**, impact of work on personal relationships; **MBI**, Maslach Burnout Inventory; **OR**, odds ratio

The opinions offered in this article are those of the authors and do not necessarily reflect American Medical Association policy.

**Grant Support:** Dr Dyrbye reports receiving funding support from the National Science Foundation (2041339) and the National Institute of Nursing Research (R01NR020362-01). Any opinions, findings, and conclusions or recommendations expressed in this article are those of the authors and do not necessarily reflect the views of the National Science Foundation or the authors' employers. No funding sources were involved in or influenced the design, data collection, analysis, or interpretation of this study.

**Correspondence:** Address to Mickey Todd Trockel, MD, PhD, 401 Quarry Rd, Stanford CA, 94305 ([trockel@stanford.edu](mailto:trockel@stanford.edu)).

## REFERENCES

- Holt-Lunstad J, Smith TB, Baker M, Harris T, Stephenson D. Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspect Psychol Sci*. 2015;10(2):227-237.
- Valtorta NK, Kanaan M, Gilbody S, Ronzi S, Hanratty B. Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies. *Heart*. 2016;102(13):1009-1016.
- Mann F, Wang J, Pearce E, et al. Loneliness and the onset of new mental health problems in the general population. *Soc Psychiatry Psychiatr Epidemiol*. 2022;57(11):2161-2178. Published correction appears in *Soc Psychiatry Psychiatr Epidemiol*. 2022; 57(11):2179.
- Shanafelt TD, West CP, Dyrbye LN, et al. Changes in burnout and satisfaction with work-life integration in physicians during the first 2 years of the COVID-19 pandemic. *Mayo Clin Proc*. 2022;97(12):2248-2258.
- Shanafelt TD, West CP, Sinsky C, et al. Changes in burnout and satisfaction with work-life integration in physicians and the general US working population between 2011 and 2020. *Mayo Clin Proc*. 2022;97(3):491-506.
- Tawfik DS, Shanafelt TD, Dyrbye LN, et al. Personal and professional factors associated with work-life integration among US physicians. *JAMA Netw Open*. 2021;4(5):e2111575.
- Frank E, Zhao Z, Fang Y, Rotenstein LS, Sen S, Guille C. Experiences of work-family conflict and mental health symptoms by gender among physician parents during the COVID-19 pandemic. *JAMA Netw Open*. 2021;4(11):e2134315.
- Ahmad A. Work-family conflict among junior physicians: its mediating role in the relationship between role overload and emotional exhaustion. *J Soc Sci*. 2010;6(2):265-271.
- Fuß I, Nübling M, Hasselhorn HM, Schwappach D, Rieger MA. Working conditions and work-family conflict in German hospital physicians: psychosocial and organisational predictors and consequences. *BMC Public Health*. 2008;8:353.
- Guille C, Frank E, Zhao Z, et al. Work-family conflict and the sex difference in depression among training physicians. *JAMA Intern Med*. 2017;177(12):1766-1772.
- Dyrbye LN, West CP, Satele D, Sloan JA, Shanafelt TD. Work/home conflict and burnout among academic internal medicine physicians. *Arch Intern Med*. 2011;171(13):1207-1209.
- Dyrbye LN, Shanafelt TD, Balch CM, Satele D, Sloan J, Freischlag J. Relationship between work-home conflicts and burnout among American surgeons: a comparison by sex. *Arch Surg*. 2011;146(2):211-217.
- Trockel J, Bohman B, Wang H, Cooper W, Welle D, Shanafelt TD. Assessment of the relationship between an adverse impact of work on physicians' personal relationships and unsolicited patient complaints. *Mayo Clin Proc*. 2022; 97(9):1680-1691.
- Welle D, Trockel MT, Hamidi MS, et al. Association of occupational distress and sleep-related impairment in physicians with unsolicited patient complaints. *Mayo Clin Proc*. 2020; 95(4):719-726.
- Ligibel J, Goularte N, Berliner J, et al. Well-being parameters and intention to leave current institution in academic physicians. *JAMA Netw Open*. 2023;6(12):e2347894.
- Leiter MP, Durup J. The discriminant validity of burnout and depression: a confirmatory factor analytic study. *Anxiety Stress Coping*. 1994;7(4):357-373.
- Kalliath TJ, O'Driscoll MP, Gillespie DF, Bluedorn AC. A test of the Maslach Burnout Inventory in three samples of healthcare professionals. *Work Stress*. 2000;14(1):35-50.
- Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach Burnout Inventory for family practice physicians. *J Clin Psychol*. 1986;42(3):488-492.
- West CP, Dyrbye LN, Satele DV, Sloan JA, Shanafelt TD. Concurrent validity of single-item measures of emotional exhaustion and depersonalization in burnout assessment. *J Gen Intern Med*. 2012;27(11):1445-1452.
- West CP, Dyrbye LN, Sloan JA, Shanafelt TD. Single item measures of emotional exhaustion and depersonalization are useful for assessing burnout in medical professionals. *J Gen Intern Med*. 2009;24(12):1318-1321.
- Brady KJ, Barlam TF, Trockel MT, et al. Clinician distress and inappropriate antibiotic prescribing for acute respiratory tract infections: a retrospective cohort study. *Jt Comm J Qual Patient Saf*. 2022;48(5):287-297.
- Fahrenkopf AM, Sectish TC, Barger LK, et al. Rates of medication errors among depressed and burnt out residents: prospective cohort study. *BMJ*. 2008;336(7642):488-491.
- Halbesleben JR, Rathert C. Linking physician burnout and patient outcomes: exploring the dyadic relationship between physicians and patients. *Health Care Manage Rev*. 2008; 33(1):29-39.
- Shanafelt TD, Balch CM, Bechamps G, et al. Burnout and medical errors among American surgeons. *Ann Surg*. 2010;251(6): 995-1000.
- Tawfik DS, Profit J, Morgenthaler TI, et al. Physician burnout, well-being, and work unit safety grades in relationship to reported medical errors. *Mayo Clin Proc*. 2018;93(11):1571-1580.
- Han S, Shanafelt TD, Sinsky CA, et al. Estimating the attributable cost of physician burnout in the United States. *Ann Intern Med*. 2019;170(11):784-790.
- Hamidi MS, Bohman B, Sandborg C, et al. Estimating institutional physician turnover attributable to self-reported burnout and associated financial burden: a case study. *BMC Health Serv Res*. 2018;18:851.
- Office of the U.S. Surgeon General. Our Epidemic of Loneliness: The U.S. Surgeon General's Advisory on the Healing Effects of Social Connection and Community. Published online 2023. Accessed August 12, 2023. <https://www.hhs.gov/sites/default/files/surgeon-general-social-connection-advisory.pdf>
- Sinsky CA, Bodenheimer T. Powering-up primary care teams: advanced team care with in-room support. *Ann Fam Med*. 2019;17(4):367.
- Kerr EA, Friese CR, Conroy JM. Enhancing the value of clinical work—choosing wisely to preserve the clinician workforce. *JAMA Health Forum*. 2022;3(11):e224018.
- Sinsky CA, Panzer J. The solution shop and the production line—the case for a frameshift for physician practices. *N Engl J Med*. 2022;386(26):2452-2453.
- Grimmer SA, Jacquin KM. When perceived physician burnout leads to family burnout: how secondary emotional trauma impacts physician spouses. *Mental Health Science*. 2023;1:231-241.