Survey of Physician Well-Being and Health Behaviors at an Academic Medical Center

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Abstract: **Purpose:** The study aims were to ascertain, among attending and house staff at a single academic medical center, the prevalence of and risk factors for psychiatric symptoms and disorders and for personal health behaviors.

Methods: A self-administered, anonymous 72-item survey of physicians was conducted in February 2003.

Results: Response rate was 37.6%. The prevalence of current depressive symptoms was 29%. AUDIT scores consistent with high likelihood of harmful alcohol consumption were prevalent in 6%. Almost 5% acknowledged use of sedatives or hypnotics without a prescription in the prior 12 months. Characteristics independently associated with current depressive symptoms included: living alone, full time salaried faculty status, not having a primary care physician, female sex, and age < 50 years. Factors associated with high risk of harmful alcohol consumption included: male sex, house staff status, and not being exclusively heterosexual.

Conclusions: The prevalence of recent depressive symptoms among responding physicians was nearly 30%. Interventions to engage physicians in primary care relationships and social support to confidentially disclose potentially stigmatizing characteristics may facilitate earlier case finding of those at risk for depression, suicide, and substance abuse

Key Words: Physician Well-Being, Prevalence, Risk Factors

Physician well-being committees at academic medical centers are charged to evaluate and monitor individual physicians and house officers with suspected impairment and also to promote healthier behaviors among attending physicians and those in training. Unfortunately, the work of most such committees deals with only individuals with problems. Little is known regarding the larger context that may give rise to the few individuals ultimately referred for assessment. Recent reviews summarizing the published epidemiology of depression and suicide among physicians have suggested that, while lifetime rates of depression are similar to those of general population surveys, the rates of suicide among physicians appear to be higher than general populations rates. [1, 2] Whether academic physicians differ in risk from those not involved in medical education is unknown.

In 2002, the Medical Staff Executive Committee at UCSD Medical Center charged the Physician Well-Being Committee to conduct an anonymous survey of attending and house staff physicians concerning physician well-being and health behaviors in order to provide a context of referrals to the Well-Being Committee and as a needs assessment for possible intervention.

The aims of the Physician Well-Being Study (PWBS) were to ascertain the prevalence of and risk factors for:

1. Reported depression and depressive symptoms,
2. Suicidal ideation and attempts,
3. Alcohol and substance abuse behaviors,
4. Bipolar spectrum symptomatology,
5. Satisfaction with personal and professional life,
6. Self-prescribing behaviors,
7. Personal use of primary health care services, and
8. Personal use of mental health services.

Methods

The target population included all attending and house staff physicians at UCSD Medical Center. The survey was funded by the study institution.

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Questionnaire - An anonymous 72-item, self-administered survey was developed, pilot tested and approved by the University of California San Diego Human Subjects Committee. The survey, conducted in February 2003, was accompanied by a cover letter from the Chief of Staff and Medical Director as well as a brochure on services of the Physician Well-Being Committee. Surveys were sent via office mail and email to the target population of physicians on two occasions allowing two months to respond by mailing back the completed surveys. Previously validated instruments on depressive symptoms, suicidality, mood disorders, drug use and alcohol use were included in the survey.

Depression - The Center for Epidemiologic Studies Depression Scale (CESD-10) was used for screening of depressive symptoms.[3] The original CES-D screening tool with 20 items is considered to be an appropriate screening instrument for symptoms of depressed mood in older adults and has high levels of reliability and validity to detect both clinical and nonclinical symptoms of depressed mood for a wide range of study populations.[4] According to a study by Andresen et al., the CESD-10, containing 10 questions, showed good predictive accuracy when compared to the full-length version of the CES-D. The recall period was during the prior week. The possible range of scores for the CESD-10 is 0 to 30, with higher scores representing greater degrees of depressed mood. Retest reliability of the CESD-10 was found to be 0.71.[4] Scores on the instrument correlated positively with self-reported stress (r=0.43) and negatively with positive affect scores (r=-0.63). The authors of the CESD-10 recommend that a cutoff score of 10 or greater be used to minimize the number of false negatives and misclassifications.

Suicidality - The Depressive Symptom Index-Suicidality Subscale (DSI-SS) is used to assess suicidality in general health settings.[5] Results and conclusions are limited to suicidal ideation, and may not apply to suicidal behavior. The screen consists of four groups of statements regarding suicidal thoughts, plans and impulses that are able to identify the frequency, severity, and consistency of suicidal ideation. The recall period was during the past two weeks. Scores on each item range from 0 to 3, giving a total range from 0 to 12, with higher scores reflecting greater severity of suicidal ideation. The reported reliability of the measure was 0.77. The authors of the DSI-SS suggest that a cutoff score of 3 or greater be used in identifying individuals who need further investigations of their suicidal thoughts. In the cited validation study of the instrument[5], approximately 15% over the sample would be classified as symptomatic at a cutoff score of 3 or more.

Mood Disorders - The Mood Disorder Questionnaire was used to screen for bipolar spectrum disorders..[6] This questionnaire screens for a lifetime history of bipolar spectrum disorder (a manic or hypomanic syndrome) by including 13 yes/no items. The Cronbach reliability coefficient of the instrument was 0.90. With the range of scores varying from 0 to 13, the authors of the Mood Disorder Questionnaire suggest a score of 7 or greater as the optimal cutoff, with associated sensitivity of 0.73 and specificity of 0.90 when compared to a gold standard criterion diagnosis (Structured Clinical Interview for DSM-IV).

Drug Use - The Drug Abuse Screening Test 10 (DAST-10) was used to provide a brief self-reported index of drug abuse problems.[7] The recall period was during the past 12 months. The DAST-10 scores range from 0 to 10, with greater scores indicating greater degrees of problems related to drug use. A score of zero indicated no problems, 1-2 indicated a low level, 3-5 indicated a moderate level, 6-8 a substantial level, and 9-10 is a severe level of drug related problems. Using a cutoff of > 3, the DAST-10 correctly classified >93% of patients when compared to either SCID or clinical diagnosis of lifetime substance use disorder when tested in a sample of inpatient substance abusers.[8] When evaluated in a sample of adults with mental illness, at a cutoff of >3, the DAST-10 was found to have a sensitivity of 0.70 and specificity of 0.80 when compared to a DSM-IV diagnosis of drug use disorder.[9]

Alcohol Use - The Alcohol Use Disorders Identification Test (AUDIT), designed by the World Health Organization, was used in assessing problematic drinking.[10] The recall period was during the last year. Scoring of the 10 items yields an overall score ranging from 0 to 40. Authors of the AUDIT suggest that a cutoff score of 8 or more indicates a strong likelihood of hazardous or harmful alcohol consumption. In a general population sample, the reported sensitivity of the instrument was 0.78 and specificity 0.94 for current alcohol dependence at a cutoff of 8 or more.[11]

Other Measures. - Also included in the survey were single items measuring physicians' satisfaction with personal life and with professional life, self-prescribing behaviors during the past 12 months, personal use of primary health services and personal use of mental health services. Physicians also reported if they had ever been diagnosed or treated for alcohol-

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ism, bipolar disorder, depression or substance abuse, or had ever attempted suicide.

Statistical Analysis -Statistical analyses were performed using STATA version 8.0 and the Statistical Package for the Social Sciences (SPSS) version 9.0.[12,13] Ten percent of the surveys were randomly selected for data entry verification. The analysis plan included: 1) examination of the internal consistency reliability of multi-item scales using Cronbach's alpha[14], 2) examination of the distribution of scores for key study constructs, 3) categorization of scores determined by the published literature, 4) determination of associations and possible risk factors for depression, suicidality, problematic drinking, substance abuse, and bipolar spectrum symptomatology using bivariate contingency table analysis and logistic regression models. Ordinal logistic regression models were fit to the 3-category DAST-10 data (score categories: 0 [no drug problem], 1-2 [low risk], 3-5 [moderate risk]). Ordinal logistic regression makes the statistical assumption of proportional odds across categories of dependent variable.[12] Reported levels of significance are unadjusted for multiple comparisons.

Results

Response Rates of Study Subjects - The target population included 1,647 physicians. Of the 620 physicians who returned surveys, response rate was thirty-five percent among attending staff physicians and forty percent among house staff physicians. Characteristics of the target population by respondent status and employment category are presented in Table 1. Among the house staff, there was no difference in response rate by sex, age, or race/ethnicity. Among the attending staff, there were no differences in response rate by age. Race/ethnicity distribution was not available for attending staff. Respondent characteristics are presented in Table 2. *

Internal Consistency Reliability - The internal consistency reliability of each of the five scales was estimated using Cronbach's alpha. The reliability for the CESD-10 scale for depressive symptoms is 0.86. Estimates of reliability for the DSI-SS and Mood Disorder Questionnaire were both 0.74. Estimates of Cronbach's alpha for the AUDIT and DAST-10 scales were slightly lower at 0.60 and 0.55 respectively.

Prevalence Estimates -Table 3 displays the frequencies and percents of the key variables. Recent

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* Tables 2, 4 and 5 are located in the Appendix.

suicidal ideation was reported in 20 of the 588 respondents (3.3%). Seven respondents acknowledged attempted suicide (1.1%). CESD-10 scores consistent with depressive symptoms were observed in 29%. Sixteen percent of physicians had been diagnosed with depression at some time in their lives. In the past 12 months, 24% acknowledged significant depressive symptoms for a two-week time period and 14% used antidepressants within the past year. The AUDIT scores suggested 6% of respondents were at high likelihood of harmful alcohol consumption but only 0.5% acknowledged a previous diagnosis of alcoholism. Using the DAST-10 instrument, 1% of respondents scored in the range (3-5) of moderate risk of substance abuse, 7% in the range (1-3) of low risk, and 92% scored 0 suggestive of no drug problems. No respondents scored higher than 5 on the DAST-10. Less than 1% acknowledged a prior diagnosis of substance abuse. Almost 5% acknowledged use of sedatives or hypnotics without a prescription in the past 12 months. Bipolar spectrum symptomatology was suggested in 1.5% of respondents according to the Mood Disorder Questionnaire. Regarding life satisfaction, 9% of this population was either somewhat unsatisfied or very unsatisfied with their personal lives and 11% were either somewhat unsatisfied or very unsatisfied with their professional lives. Over 60% of respondents reported having a primary care physician and of these, 65% endorsed that they had seen their physician in the last year. Sixty-nine (11%) physicians had seen a mental health professional in the last 12 months.

Risk Factor Analyses - Bivariate Contingency Table Analyses. Using bivariate contingency table analyses, unadjusted risk factors for depression (CESD-10), suicidality (DSI-SS), strong likelihood for problematic drinking (AUDIT) and substance abuse (DAST-10) were identified. Table 4 presents unadjusted associations between key study measures (depressive symptoms, suicidality, hazardous drinking and drug abuse) and subject characteristics.

Protective characteristics for depressive symptoms included being a male over the age of 50, being a voluntary faculty physician and having a primary care physician. However, the odds of depressive symptoms were greater in physicians who lived alone, who were unsatisfied with their personal or professional lives and who had a strong likelihood for hazardous drinking.

Characteristics positively associated with suicidality were the reporting of depressed mood for two weeks during the past year, the endorsement of depressive symptoms (CESD-10), having a strong like-

TABLE 1: Characteristics of Target Population, by Respondent Status and Employment Category*

Characteristic	House Staff			Attending Staff		
	Responders	Non-Responders	p-value	Responders	Non-Responders	p-value
Sex [n (%)]			0.921			<0.0001
Female	91 (41)	131 (41)		125 (32)	151 (21)	
Male	129 (59)	189 (59)		264 (68)	560 (79)	
Age [Mean (Std Dev)]	30.7 (14.7)	32.1 (3.6)	0.17	48.9 (25.6)	46.9 (10.1)	0.14
Race/Ethnicity			0.239	n/a	n/a	
Black	3 (1)	6 (2)				
Asian/Pacific Islander	47 (22)	74 (23)				
Hispanic	9 (4)	15 (5)				
White	146 (67)	191 (60)				
Other	13 (6)	36 (10)				
Specialty			<0.0001			0.002
Anesthesiology	14 (8)	17 (5)		19 (5)	49 (7)	
Family Medicine	13 (7)	31 (9)		22 (6)	20 (3)	
Internal Medicine	63 (34)	111 (32)		117 (33)	213 (30)	
Reproductive Medicine	7 (4)	13 (4)		20 (6)	48 (7)	
Pathology/Radiology	17 (9)	31 (9)		30 (8)	82 (12)	
Pediatrics	15 (8)	62 (18)		56 (16)	65 (9)	
Psychiatry	28 (15)	15 (4)		29 (8)	53 (8)	
Surgery	28 (15)	65 (19)		63 (18)	164 (24)	

*Sample size for characteristics vary because of missing responses.

lihood for hazardous alcohol consumption (AUDIT), consulting with a mental health professional within the past year and being somewhat or very unsatisfied with personal or professional lives.

A strong likelihood for hazardous alcohol consumption was positively associated with male sex, house staff status, dissatisfaction with personal life, suicidal ideation (DSI-SS), depressive symptoms (CESD-10), low or moderate levels of drug abuse related problems(DAST-10), bipolar spectrum symptomatology (Mood Disorder Questionnaire), consultation with a mental health professional within the past year and having a depressed mood for two weeks in the past year. However, being exclusively heterosexual or having a primary care physician were protective factors.

Because of the association of sexual orientation with risk of hazardous drinking, further exploratory analyses were performed to determine what other characteristics were associated with reported sexual orientation. In a multiple logistic regression model, characteristics associated with not being "exclusively heterosexual" included living alone (adjusted OR 2.5, p=0.025), reporting self-prescribing behavior (adjusted OR 4.1, p=0.001), and high probability of hazardous drinking (adjusted OR 2.8, p=0.051).

Unadjusted associations with drug abuse related problems (DAST-10) included a strong likelihood for hazardous drinking (AUDIT), having had depressive symptoms (CESD-10), being male, being of house staff status, living alone and being unsatisfied with personal life.

Multivariate Logistic and Ordinal Regression Analyses - Those associations found to be significant (p<0.05) in bivariate analyses were entered into regression models to identify independent predictors of key study outcomes. Table 4 presents adjusted associations for depression (CESD-10), suicidality (DSI-SS), problematic drinking (AUDIT) and substance abuse (DAST-10).

TABLE 3. Frequencies and Percentage Distribution of Study Measures

Variable	Percent (n/N$_{responding}$)	95% CI
Depressive symptoms (CESD score $\geq$ 10)	29.4 (181/615)	25.9 – 33.2
Ever diagnosed with depression	16.3 (100/613)	13.5 – 19.5
Depressed for 2 weeks in last 12 months	23.8 (146/613)	20.5 – 27.4
Antidepressant use in last 12 months	13.6 (83/611)	11.0 – 16.6
Suicidal ideation (DSI-SS $\geq$ 3)	3.3 (20/608)	2.0 – 5.0
Ever attempted suicide	1.1 (7/615)	0.5 – 2.3
High likelihood for harmful drinking (AUDIT score $\geq$ 8)	6.0 (37/612)	4.3 – 8.2
Ever diagnosed with alcoholism	0.5 (3/606)	0.1 – 1.4
Moderate risk for substance abuse (DAST score $\geq$ 3)	1.0 (6/604)	0.4 – 2.2
Ever diagnosed with substance abuse	0.7 (4/603)	0.2 – 1.7
Use of sedative/hypnotics without prescription in last 12 months	4.7 (29/611)	3.2 – 6.8
Suspected bipolar spectrum (Mood Disorder Questionnaire score $\geq$ 7)	1.5 (9/606)	0.7 – 2.8
Somewhat or very unsatisfied with personal life	8.9 (55/616)	6.8 – 11.5
Somewhat or very unsatisfied with professional life	11.3 (70/617)	9.0 – 14.1
Have a primary care physician	61.5 (379/616)	57.6 – 65.4
Consultation with primary care physician within the past year	65.2 (247/379)	60.1 – 70.0
Consultation with mental health professional within the last 12 months	11.2 (69/616)	8.8 – 14.0

In adjusted models, characteristics independently and positively associated with depressive symptoms were a salaried faculty status, age less than 50 years, and living alone. Being male and reporting a primary care physician were significantly protective associations.

Factors independently associated with suicidality include reporting depressed mood for two weeks during the past year and being unsatisfied with personal life.

Hazardous drinking was evaluated in two models. Model 1 included demographic characteristics as predictors, while model 2 included scores on multi-item measures of suicidality, bipolar spectrum symptomatology and substance abuse related problems. In these adjusted models, characteristics independently associated with hazardous drinking (model 1) were male sex and house staff status. In addition, those most likely to score in the hazardous drinking range also scored significantly higher on measures of suicidal ideation, bipolar spectrum symptomatology and in the low or moderate range for drug abuse related problems (model 2).

Independent associations with drug abuse related problems included being of male sex, house staff status, living alone, and having had a strong likelihood for hazardous drinking.

Discussion

Although physician well-being committees primarily focus on evaluation, treatment planning, and monitoring of individual physicians with suspected impairment, an additional responsibility is to "educate its members and the members of the medical staff about physician health, well-being, and impairment" (Guidelines for Physician Well-being Committees, California Medical Association 1998). Despite the methodologic limitations of a voluntary anonymous survey at a single academic medical center, the results of the present study contribute to the education of physicians by providing an updated estimate of the prevalence of characteristics possibly associated with physician impairment and by identifying factors that may predispose to or serve as markers of increased risk. In order to place our results in context, we will review what is known about the prevalence of depression, suicidality, and substance abuse

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among physicians and then comment on the key associations or risk factors emerging from our data.

Prevalence of Depression and Suicidality - Based on the CESD-10 scores, current depressive symptoms were reported in 29% of our respondents, 16% reported a prior or current diagnosis of depression, and 13% had used antidepressants within the prior year. Recent suicidal ideation and attempted suicide were reported in 3.3% and 1.1%, respectively, of our respondents. Estimates for lifetime prevalence of major depressive episode among young adults (ages 17 – 39) in the United States varied from 7.6% (Epidemiologic Catchment Area Study) to 8.6% (NHANES III).[15] Among U.S. males (ages 45-54) the lifetime prevalence of major depression was 12%[16]. Among female physicians, the lifetime prevalence of self reported depression was 19.5%[17]. Using the 20-item CESD with a cutoff score of >15, Eaton and Kessler reported unadjusted national prevalence of depressive symptoms of 10.8% and 20.8% for males and females, respectively, in the first Health and Nutrition Survey (HANES) conducted between 1971 – 1975.[18] Other surveys of physician populations that used the 20-item version of the CESD showed the following prevalence estimates of depressive symptoms: Canadian emergency room (ER) physicians 15.5%, U.S. emergency room physicians 19.3%, and Canadian house staff physicians 22.8%.[19-21] Reports of suicidal ideation in other physician populations range from 7% in British women physicians evaluated by the General Health Questionnaire[22], to 11% of house staff in a study at a Midwestern medical school,[23] to Finnish physicians who were reported to have prevalence rates as high as 22.1% for male physicians and 25.9% for female physicians.[24]
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Prevalence of Alcohol and Drug Abuse - Among our respondents, 6% scored in a range of high likelihood of harmful alcohol consumption on the AUDIT instrument, whereas only 0.6% acknowledged a previous diagnosis of alcoholism. With regard to substance abuse other than alcohol, 1% of respondents scored in the moderate risk range on the DAST-10 and less than 1% acknowledged a prior diagnosis of substance abuse. The prevalence of alcohol or illicit drug abuse appears to be between 8% and 12% in other physician populations as estimated by different sources including license and disciplinary actions, registries of addiction, cause-specific mortality rates, hospital admission diagnoses, data from in-treatment populations, and surveys of selected groups of physicians.[25] At any given time, as many as 7% of practicing physicians are estimated to be current substance abusers.[26]

Association Analysis - Well-known risk factors for major depression in the general population include: female sex, age with peak onset between 20 and 40 years, a family history of depression, being separated or divorced, and experiencing negative life events[27]. We identified similar characteristics as associations with depressive symptoms: female sex, being less than 50 years old, and living alone. Furthermore, a salaried faculty status (in contrast to voluntary faculty status) and reporting no primary care physician were also traits associated with depressive symptoms. While we cannot assert a causal relationship between reported depressive symptoms and failure to have a primary care physician, it is possible that those with primary care physicians would be more likely to engage in discussions that would lead to identification and treatment of depressive syndromes. In our sample, 40% of physicians did not have a primary care physician, an estimate similar to that reported by Gross and colleagues (35%) who also noted that this characteristic was predictive of less use of preventive medical services.[28]

We have found that factors independently associated with suicidality include reporting symptoms of depression for at least two weeks during the past year and being dissatisfied with personal life. These characteristics are consistent with the literature in that the major risk factors for suicide are mental disorders and substance use disorders. More than 90% of those who die by suicide have at least one of these disorders.[29] There are many reasons why physicians could be dissatisfied with their personal lives. Among these are personal losses, family and relationship difficulties, financial problems, overwork, loneliness, and career dissatisfaction. Academic physicians may be subject to the additional stress associated with the career expectation commonly referred to as the "triple threat" (clinical, teaching, and research excellence). However, there is no evidence linking these stresses to the elevated suicide rate among physicians. It is also not established that physicians are subject to more occupational stress than other professions[1].

We identified the following characteristics as being independently associated with strong likelihood of hazardous drinking: male sex, house staff status, having had suicidal thoughts, bipolar spectrum symptomatology and low or moderate levels of drug abuse related problems. Independent associations with drug abuse related problems included being of male sex, house staff status, living alone, and having had a strong likelihood for hazardous drinking. Hazardous drinking and drug abuse risk scores were correlated

in the physician population we studied. In unadjusted analyses, those reporting sexual orientation to be other than exclusively heterosexual were at significantly increased risk of hazardous drinking. These same respondents were also more likely to live alone and to report self-prescribing behaviors.

Male physicians appear to be at greater risk of alcohol and drug abuse than females. Talbott and colleagues report that nearly 90% of physicians referred for substance abuse treatment are male although almost one third of physicians are female.[26] In addition to a gender effect, house staff status was associated in our study with both alcohol and drug abuse risk. While this association may represent an age or cohort effect, it is possible that physicians in training may be experiencing the additional stress of longer hours of practice and because they are less frequently in primary care, may seek self-treatment with prescription medications. These two characteristics (long hours and self-treatment) have been identified in previous research as risk factors for developing substance abuse.[26, 30, 31]

Study Limitations

Inference from our study is subject to several limitations. First, the response rate of the survey was 37.6% despite two mailings and an endorsing letter by medical center leadership. This limits our ability to generalize the results to the entire target population. When comparing respondents to non-respondents by available sociodemographic characteristics, imbalances were noted for specialty distribution (among both house staff and attending staff) and sex (among attending staff). However, by reported sexual orientation, the prevalence of other than "exclusively heterosexual" at 5% is in line with population estimates in the United States.[32] Second, the prevalence estimates of stigmatized characteristics and behaviors may be subject to non-response bias and the direction of bias is not directly ascertainable.[33] Reporting of stigmatized behaviors among participants, even in an anonymous survey, may have lead to underestimation of prevalence. On the other hand, if non-respondent physicians were less likely to have or be at risk for surveyed behaviors, the prevalence estimates might be inflated relative to the entire target population. Third, comparison of our prevalence estimates to those reported in the literature and referenced above is difficult because of differences in study design, measurement instruments, population characteristics and temporal period differences. Fourth, some associations between potential risk factors and study constructs may be spurious because of multiple comparisons. However, the association

analysis was intended to identify potential risk factors to facilitate more targeted attention by the medical staff, not as a definitive demonstration of causality. Fifth, the instruments we administered were designed for screening purposes, not for definitive diagnosis. Therefore, although we used cut-off scores recommended in validation studies, our results are subject to misclassification bias, the magnitude of which could not be directly estimated in our sample. Lastly, due to the cross-sectional study design, inference regarding causal relationships among putative risk factors and outcomes such as depression and substance abuse is limited.

Conclusions

The prevalence of recent depressive symptoms among respondents to this survey of attending and house staff physicians at a single institution was nearly 30%. Characteristics of those at greater risk were female sex, house staff and younger salaried faculty status, not having a primary care physician, and living alone. Depressive symptoms and harmful drinking were primary characteristics associated with suicidal ideation. Interventions to engage physicians in primary care relationships (especially house staff) and both institutional and peer support to disclose potentially stigmatizing characteristics may facilitate case finding of those at greater risk for depression, suicide, and substance abuse. To facilitate valid identification of trends and populations warranting targeted intervention, surveillance of physician well-being at teaching hospitals should be routine, participation encouraged, and measurement approaches standardized.

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TABLE 2. Respondent Characteristics by Hospital Status

Factor	Salaried Attending	House staff	Voluntary Attending	Total[*]	p-value
	Staff (n=259)	(n=220)	Staff (n=133)	(n=612)	
Sex					
Female	35%	41%	26%	35%	0.016
Age					
Mean (sd)	48 (10)	31 (4)	52 (12)	43 (13)	<0.0001
Race/Ethnicity					<0.0001
African American	0.4%	1.4%	0.0%	0.7%	
Asian/PI	9%	22%	9%	13%	
Hispanic	3%	4%	2%	3%	
Caucasian	84%	67%	88%	79%	
Other	4%	6%	1%	4%	
Marital Status					<0.0001
Single	7%	42%	10%	20%	
Divorced/Separated	8%	4%	11%	7%	
Married	85%	54%	77%	72%	
Specialty					<0.0001
Anesthesiology	5%	6%	5%	5%	
Family Medicine	7%	6%	4%	6%	
Internal Medicine	32%	29%	27%	30%	
OB/GYN	4%	3%	8%	4%	
Pathology/Radiology	10%	8%	2%	8%	
Pediatrics	14%	7%	15%	12%	
Psychiatry	9%	13%	4%	9%	
Surgery	10%	13%	29%	15%	
Other/Missing	10%	14%	6%	11%	
Exclusively Heterosexual	94%	94%	96%	95%	0.643
Has primary care physician	81%	34%	69%	61%	<0.0001
Saw mental health professional in last 12 months	10%	12%	12%	11%	0.71

[*]Of 620 responding physicians, 8 did not identify employment status.

TABLE 4. Bivariate Associations between Key Study Measures (depressive symptoms, suicidality, harmful drinking, substance abuse) and Respondent Characteristics.

Predictor	Odds Ratio	95% CI	p-value
I. DEPRESSIVE SYMPTOMS (CESD ≥10)			
Level of satisfaction with personal life			
Satisfied with personal life	1.00		
Unsatisfied with personal life	7.90	4.20 - 14.70	<0.0001
Level of satisfaction with professional life			
Satisfied with professional life	1.00		
Unsatisfied with professional life	5.80	3.40 - 9.90	<0.0001
High likelihood for harmful drinking (AUDIT)			
Not at high likelihood (score < 8)	1.00		
High likelihood (score ≥ 8)	2.20	1.10 - 4.20	0.024
Living Arrangement			
Lives with one or more persons	1.00		
Lives alone	2.02	1.28 - 3.19	0.003
Hospital Status			
Salaried faculty	1.00		
House staff	1.34	0.91 - 1.95	0.136
Voluntary faculty	0.43	0.25 - 0.74	0.002
Primary Care Physician			
Does not have a primary care physician	1.00		
Has a primary care physician	0.65	0.46 - 0.93	0.018
Sex			
Female	1.00		
Male	0.59	0.41 - 0.85	0.004
Age			
Less than 50 years old	1.00		
Greater than or equal to 50 years old	0.38	0.24 - 0.61	<0.0001

II. SUICIDALITY (DSI-SS ≥ 3)

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Depressed for 2 weeks in last 12 months			
Not depressed for 2 weeks	1.00		
Depressed for 2 weeks	7.61	3.36 - 17.24	<0.0001
Level of satisfaction with personal life			
Satisfied with personal life	1.00		
Unsatisfied with personal life	6.34	2.78 - 14.45	<0.0001
Depressive symptoms (CESD-10)			
No depressive symptoms (score < 10)	1.00		
Depressive symptoms (score ≥ 10)	4.25	1.96 - 9.19	<0.0001
High likelihood for harmful drinking (AUDIT)			
Not at high likelihood (score < 8)	1.00		
High likelihood (score ≥ 8)	3.93	1.40 - 11.05	0.010
Level of satisfaction with professional life			
Satisfied with professional life	1.00		
Unsatisfied with professional life	3.89	1.69 - 8.92	0.001
Consultation with mental health professional within the last 12 months			
No consultation within the last 12 months	1.00		
Consultation within the last 12 months	2.69	1.11 - 6.56	0.029
III. HARMFUL DRINKING (AUDIT ≥ 8)			
Risk level of substance abuse (DAST-10)			
Not at risk for abuse (score =0)	1.00		
Low risk for abuse (score =1 or 2)	3.12	1.21 - 8.02	0.018
Moderate risk for abuse (score ≥ 3)	18.70	3.61 - 96.9	<0.0001
Bipolar spectrum disorder (Mood Disorder Questionnaire)			
No bipolar spectrum disorder (score < 7)	1.00		
Suspected of bipolar spectrum (score ≥ 7)	4.55	0.91 - 22.7	0.065
Depressed for 2 weeks in last 12 months			
Not depressed for 2 weeks	1.00		
Depressed for 2 weeks	4.04	2.04 -8.00	<0.0001

Suicidal ideation (DSI-SS)

No suicidal ideation (score < 3)	1.00		
Suicidal ideation (score ≥ 3)	3.93	1.40 - 11.05	0.010

Sex

Female	1.00		
Male	3.64	1.39 - 9.51	0.008

Level of satisfaction with personal life

Satisfied with personal life	1.00		
Unsatisfied with personal life	3.09	1.33 - 7.15	0.008

Consultation with mental health professional within the last 12 months

No consultation within the last 12 months	1.00		
Consultation within the last 12 months	2.36	1.03 - 5.40	0.042

Hospital Status

Salaried & voluntary faculty	1.00		
House staff	2.20	1.13 - 4.30	0.021

Depressive symptoms (CESD-10)

No depressive symptoms (score < 10)	1.00		
Depressive symptoms (score ≥ 10)	2.16	1.10 - 4.23	0.024

Primary care physician

Do not have a primary care physician	1.00		
Have a primary care physician	0.40	0.20 - 0.78	0.008

Sexual orientation

Exclusively homosexual, bisexual, other	1.00		
Exclusively heterosexual	0.26	0.10 - 0.67	0.005

IV. SUBSTANCE ABUSE (DAST-10:0, 1-2, > 3)*

High likelihood for harmful drinking (AUDIT)

Not at high likelihood (score < 8)	1.00		
High likelihood (score ≥ 8)	4.61	1.96 - 10.83	<0.0001

Living Arrangement

Lives with one or more persons	1.00		

Lives alone	3.10	1.63 - 5.88	0.001
Sex			
Female	1.00		
Male	2.96	1.36 - 6.44	0.006
Level of satisfaction with personal life			
Satisfied with personal life	1.00		
Unsatisfied with personal life	2.53	1.14 - 5.60	0.022
Hospital Status			
Salaried & voluntary faculty	1.00		
House staff	2.17	1.20 - 3.90	0.010
Depressive symptoms (CESD-10)			
No depressive symptoms (score < 10)	1.00		
Depressive symptoms (score ≥ 10)	1.94	1.07 - 3.51	0.029

[*]DAST-10 scores were modeled in 3-categories (score groups: 0, 1-2, ≥ 3) using ordinal logistic regression

TABLE 5. Adjusted Associations between Key Study Measures (depressive symptoms, suicidality, harmful drinking, substance abuse) and Respondent Characteristics.

Predictor	Odds Ratio	95% CI	p-value
I. DEPRESSIVE SYMPTOMS (CESD ≥10)			
Living Arrangement			
Lives with one or more persons	1.00		
Lives alone	1.92	1.18 - 3.14	0.009
Hospital Status			
Salaried faculty	1.00		
House staff	0.83	0.52 - 1.32	0.436
Voluntary faculty	0.46	0.26 - 0.81	0.007
Primary Care Physician			
Does not have a primary care physician	1.00		
Has a primary care physician	0.76	0.50 - 1.15	0.189
Sex			
Female	1.00		
Male	0.70	0.48 - 1.03	0.070
Age			
Less than 50 years old	1.00		
Greater than or equal to 50 years old	0.52	0.30 - 0.90	0.019
II. SUICIDALITY (DSI-SS ≥3)			
Depressed for 2 weeks in last 12 months			
Not depressed for 2 weeks	1.00		
Depressed for 2 weeks	6.10	2.43 - 15.34	<0.0001
Level of satisfaction with personal life			
Satisfied with personal life	1.00		
Unsatisfied with personal life	2.67	1.04 - 6.86	0.041
IIIA. HARMFUL DRINKING (AUDIT ≥8)			
Sex			
Female	1.00		

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Male	3.70	1.40 - 9.81	0.009
Hospital Status			
Salaried & voluntary faculty	1.00		
House staff	2.53	1.27 - 5.06	0.009
Sexual orientation			
Exclusively homosexual, bisexual, other	1.00		
Exclusively heterosexual	0.33	0.12 - 0.88	0.026
IIIB. HARMFUL DRINKING (AUDIT >8)			
Risk level of substance abuse (DAST-10)			
Not at risk for abuse (score = 0)	1.00		
Low risk for abuse (score = 1 or 2)	3.57	1.36 - 9.34	0.010
Moderate risk for abuse (score ≥3)	17.59	3.21 - 96.19	0.001
Bipolar spectrum disorder (Mood Disorder Questionnaire)			
No bipolar spectrum disorder (score <7)	1.00		
Suspected of bipolar spectrum (score ≥7)	6.28	1.23 - 31.96	0.027
Suicidal ideation (DSI-SS)			
No suicidal ideation (score <3)	1.00		
Suicidal ideation (score ≥ 3)	4.36	1.44 - 13.17	0.009
IV. SUBSTANCE ABUSE (DAST-10: 0, 1-2, ≥ 3) [*]			
High likelihood for harmful drinking (AUDIT)			
Not at high likelihood (score <8)	1.00		
High likelihood (score ≥8)	3.22	1.30 - 7.97	0.011
Sex			
Female	1.00		
Male	3.19	1.49 - 6.85	0.003
Living Arrangement			
Lives with one or more persons	1.00		
Lives alone	2.77	1.37 - 5.60	0.003
Hospital Status			
Salaried & voluntary faculty	1.00		

House staff	1.78	0.96 - 3.28	0.065

* DAST-10 scores were modeled in 3-categories (score groups: 0, 1-2, ≥ 3) using ordinal logistic regression