



# Association of Physician Burnout With Suicidal Ideation and Medical Errors

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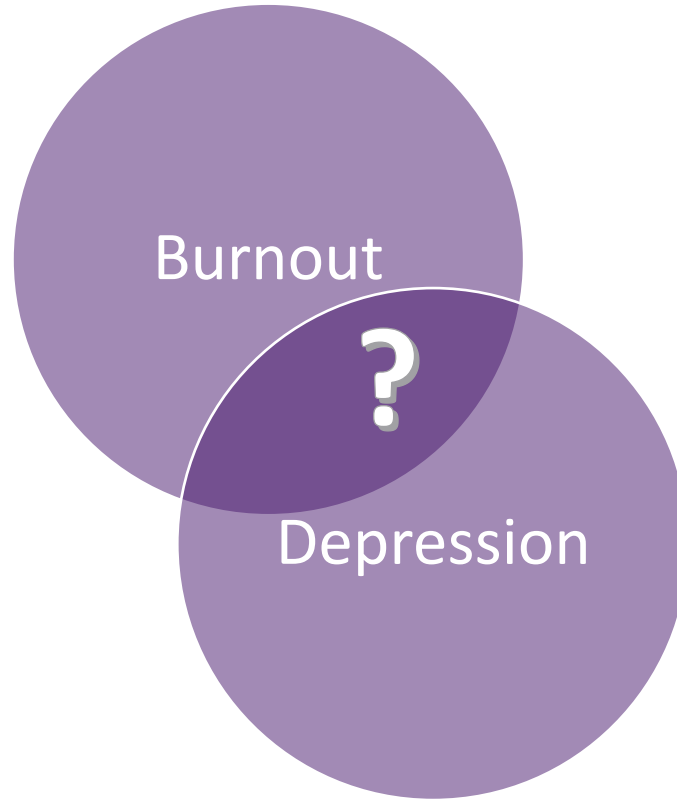
1: Stanford University School of Medicine, 2: American Medical Association, 3: Hennepin Healthcare, 4: Boston University

# Background

- Occupational distress (e.g. burnout) is often confused with generalized distress (e.g. depression)



# Are burnout and depression truly distinct experiences?



# Are burnout and depression truly distinct experiences?

INSIGHT

## Are Burnout and Depression Two Sides of the Same Coin?

**Is Burnout a Depressive Disorder? A Reexamination  
With Special Focus on Atypical Depression**

Perspective > [Medscape Business of Medicine](#)

**Burnout Might Actually Be a Form of Depression**

## Burnout Might Really Be Depression; How Do Doctors Cope?

**ARE YOUR PHYSICIANS AFFLICTED WITH BURNOUT OR  
DEPRESSION?**

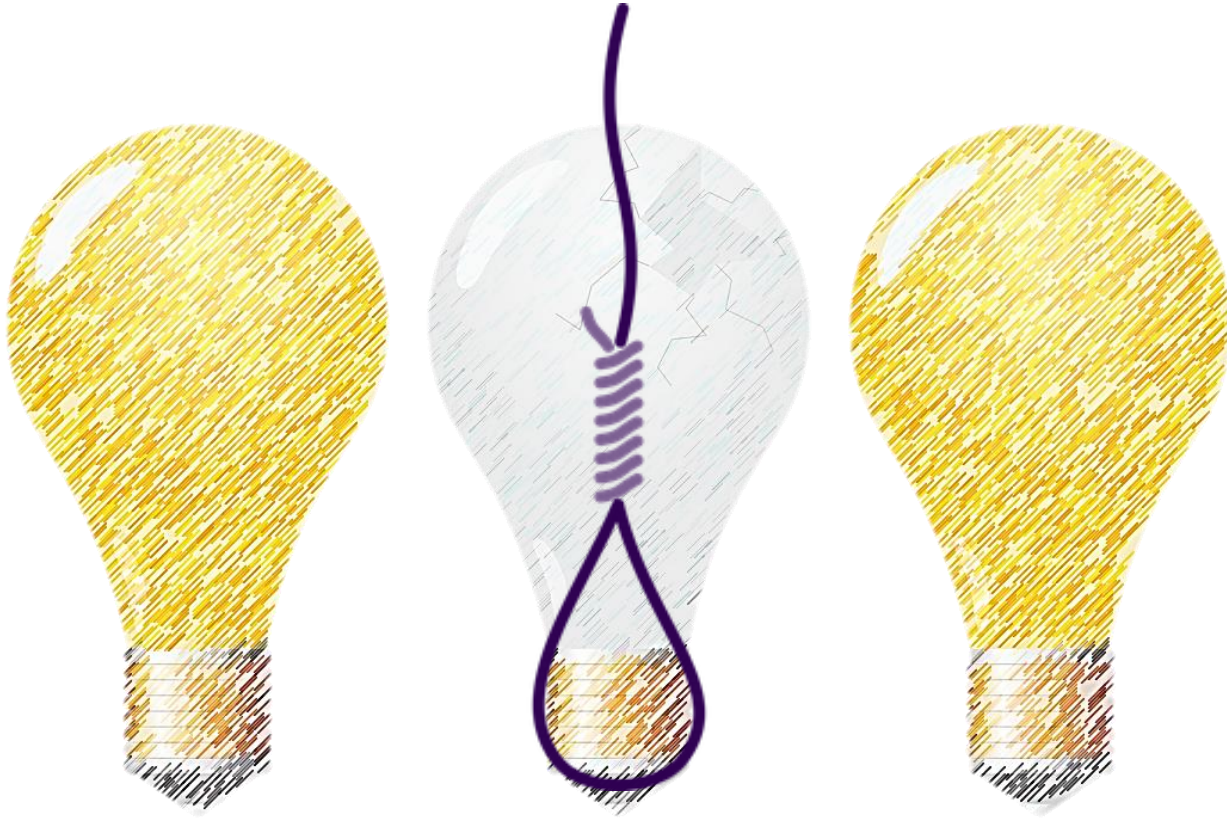
[Condition Center Home](#) > [Major Depressive](#)

ANALYSIS | BY [CHRISTOPHER CHENEY](#) | JULY 26, 2019

## Physician Burnout—or Major Depression?

—Carol Bernstein, MD, past-president of the American Psychiatric Association, discusses the difficulties distinguishing these conditions.

# Does burnout increase risk of suicidal ideation?



# Does depression increase risk of error?



# Study Design

- Cross-sectional study
  - November 12, 2018 - February 15, 2019



Menon NK, Shanafelt TD, Sinsky CA, et al. Association of Physician Burnout With Suicidal Ideation and Medical Errors. *JAMA Netw Open*. 2020;3(12):e2028780. doi:10.1001/jamanetworkopen.2020.28780

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# Measures

## Burnout

- Stanford Professional Fulfillment Index (PFI)
- Maslach Burnout Inventory–Human Services Survey for Medical Personnel (MBI)
- Mini-Z burnout survey

## Depression

- Patient-Reported Outcomes Measurement Information System (PROMIS) depression 4-item Short Form

## Suicidal Ideation

- “During the past 12 months, have you had thoughts of taking your own life?”

## Medical Error

- 4 items assessing self-reported medical errors



# Self-Reported Medical Error (*Created by Mickey Trockel, MD, PhD*)

Please indicate the most recent time you experienced each of the following things:

- I made a major medical error that could have resulted in patient harm
- I made a medical error that did result in patient harm
- I ordered the wrong medication
- I ordered the wrong lab test

In the last week	In the last month	In the last 3 months	In the last year	In my lifetime	Never
5	4	3	2	1	0

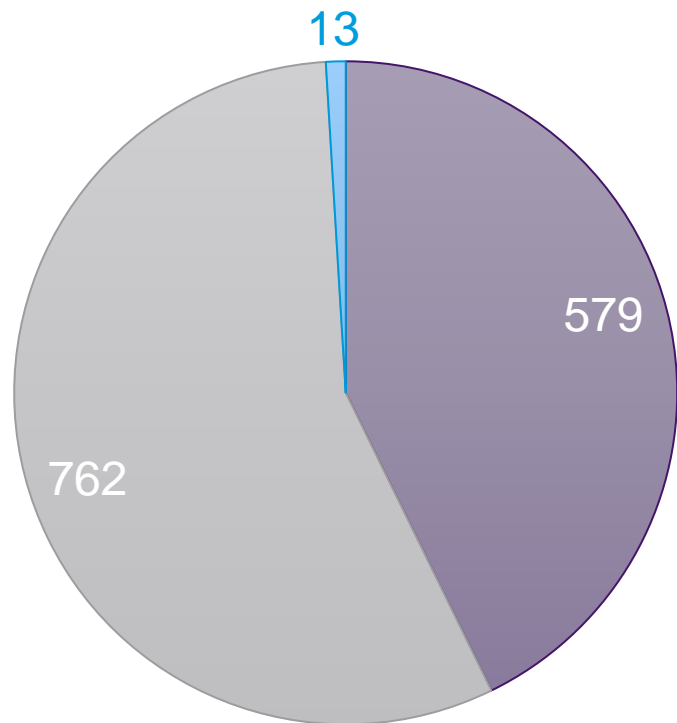
Trockel M, Bohman B, Lesure E, Hamidi MS, Welle D, Roberts L, Shanafelt T. A Brief Instrument to Assess Both Burnout and Professional Fulfillment in Physicians: Reliability and Validity, Including Correlation with Self-Reported Medical Errors, in a Sample of Resident and Practicing Physicians. *Acad Psychiatry*. 2018 Feb;42(1):11-24. doi: 10.1007/s40596-017-0849-3. Epub 2017 Dec 1.

# Study Population



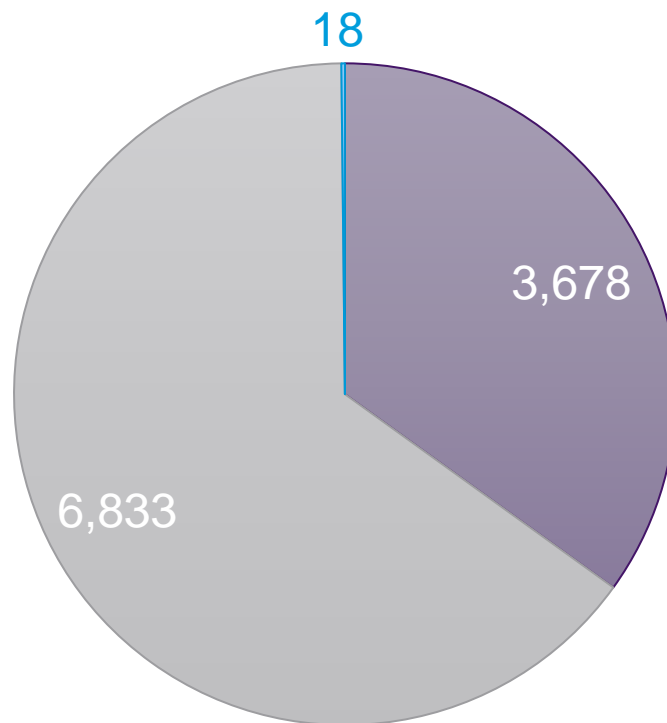
# Gender

Survey Participants (n=1,354)



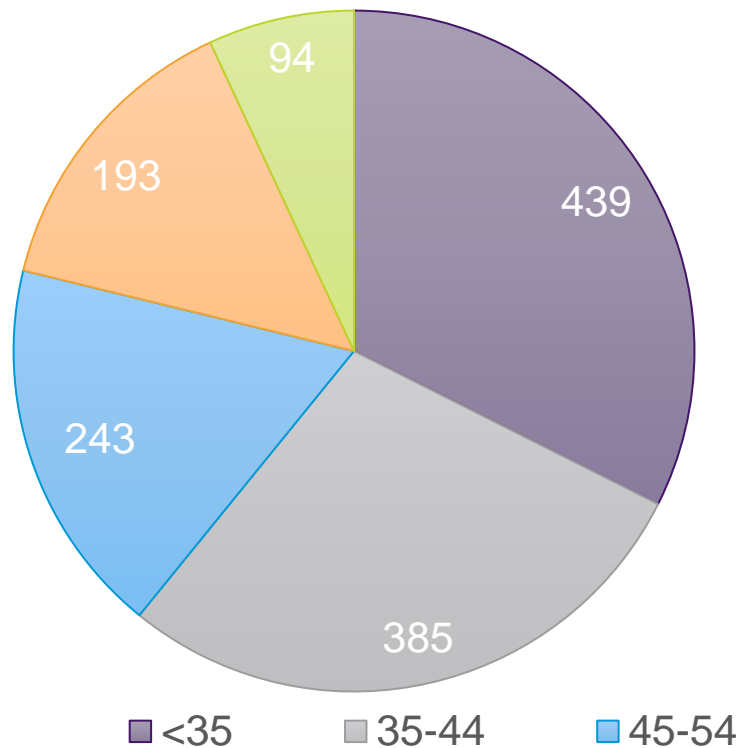
■ Female ■ Male ■ Missing

Non-responders (n=10,529)

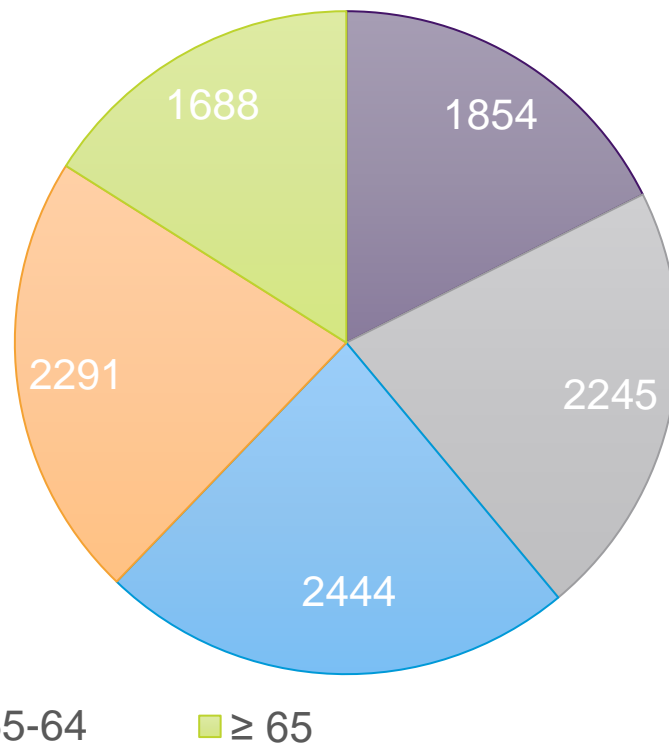


# Age Group in Years

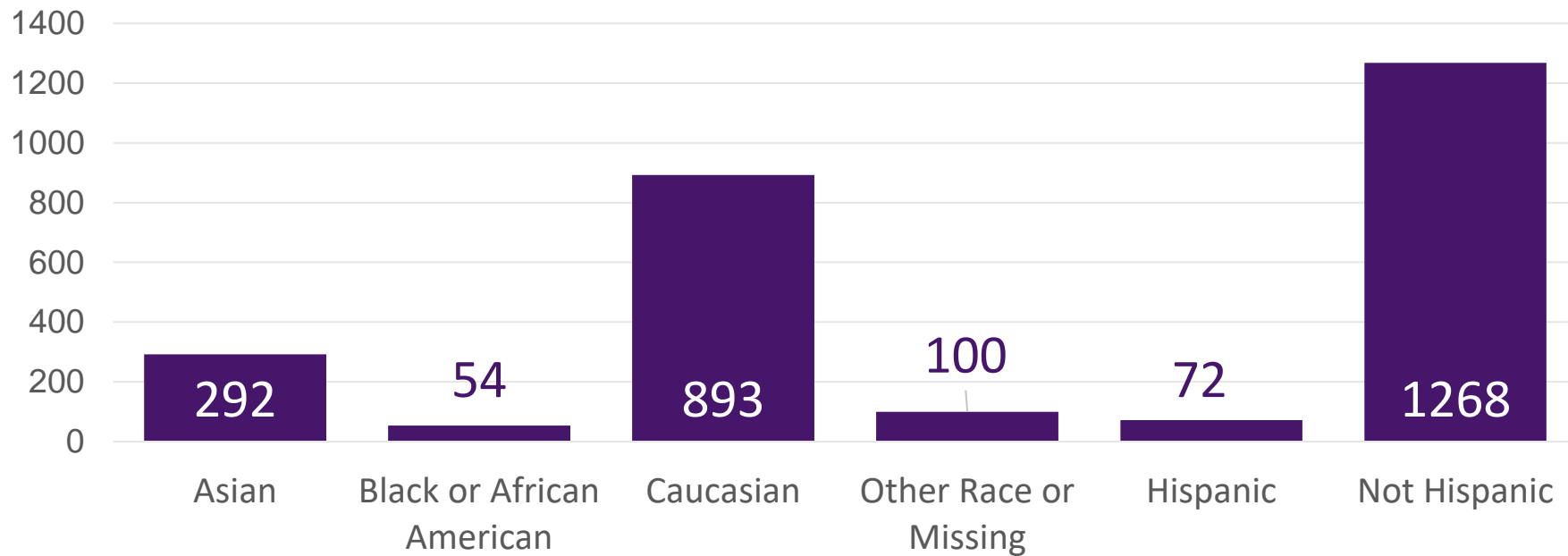
Survey Participants (n=1,354)



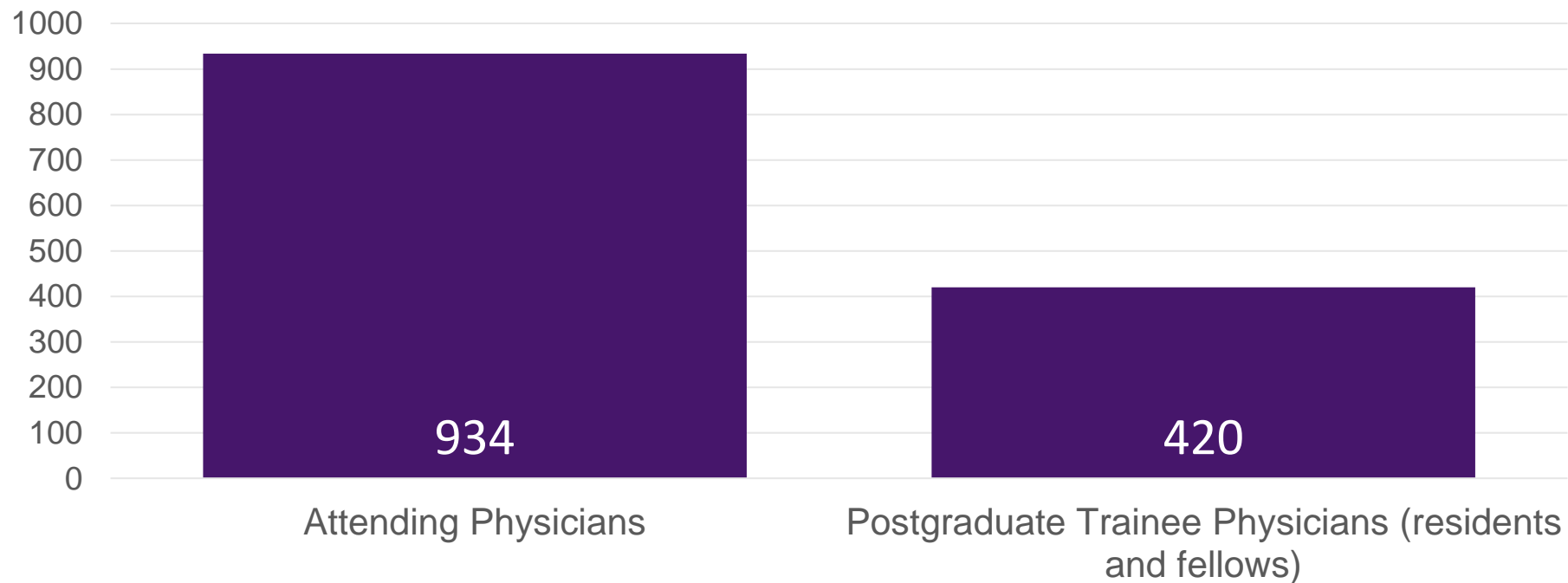
Non-Responders (n=10,529)



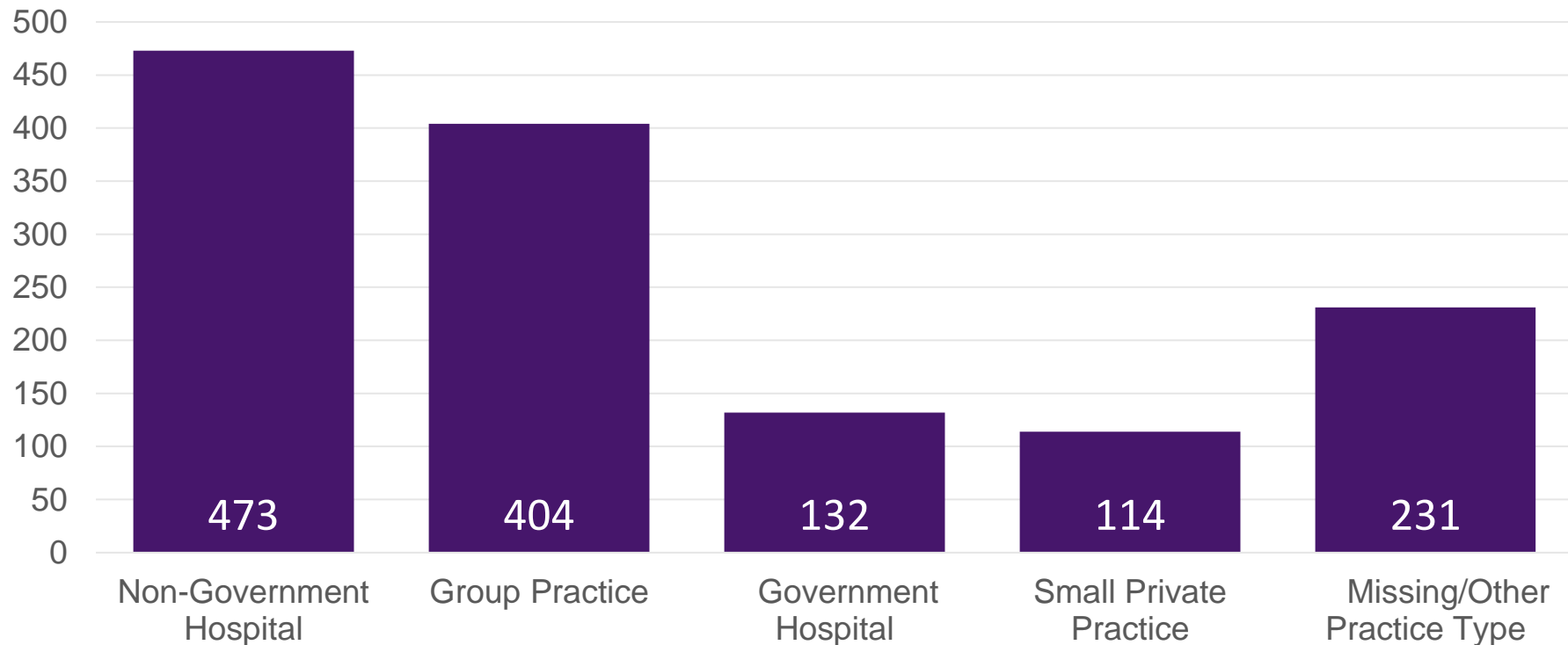
# Race & Ethnicity



# Training Status

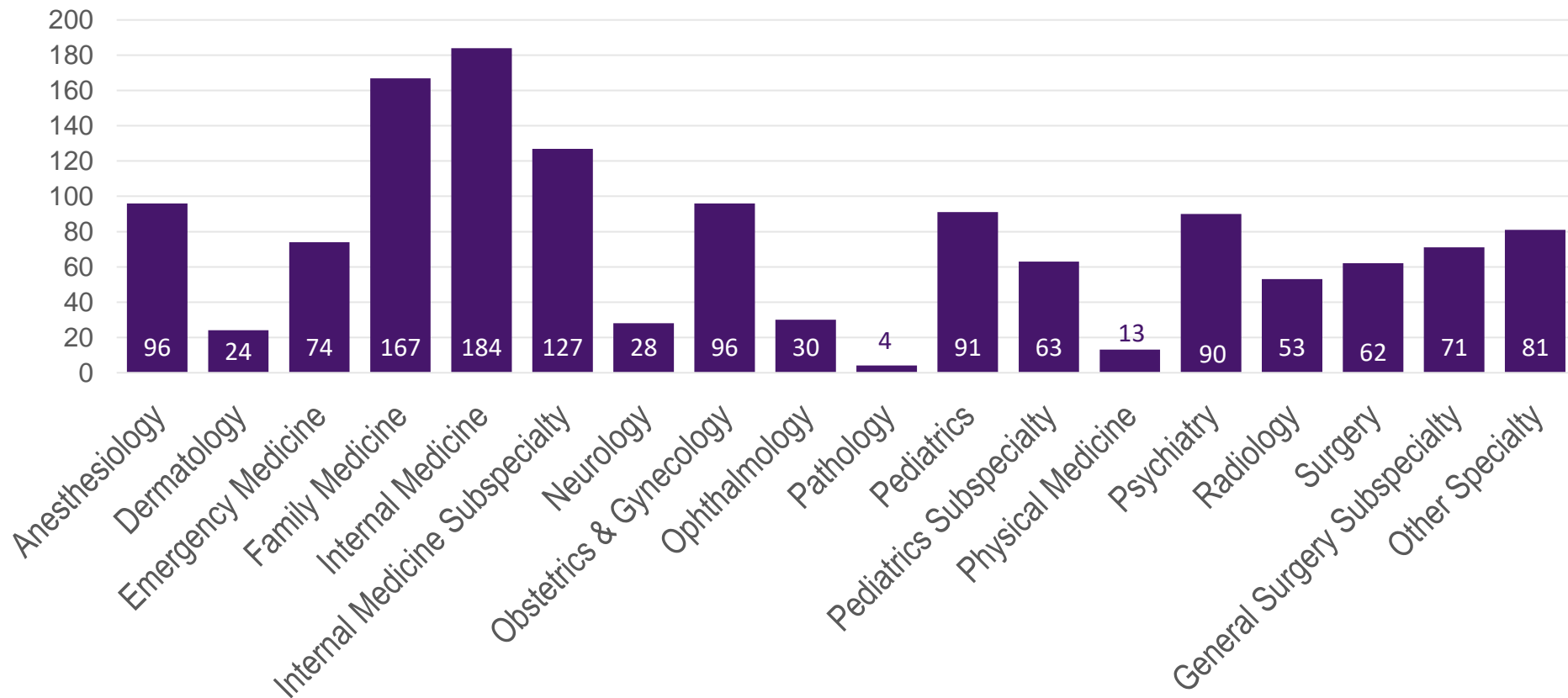


# Practice Type

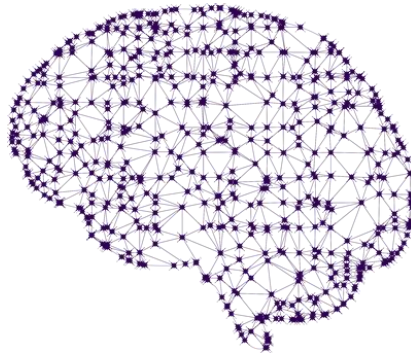




# Specialty



# Burnout and Depression



# Principal Components Analyses (PCAs)

To explore overlap between burnout and depression measures

Two separate PCAs:

- (1) emotional exhaustion measures and depression measure
- (2) depersonalization measures and depression measure

Divergent validity: loading  $\geq 0.30$  on one but not both components

- ✓ minimal cut point threshold
- ✓ better indicator
- ✓ unlikely in overlapping constructs

# (1) Burnout – Emotional Exhaustion Measures

## Assessment Item Wording

“A sense of dread when I think about work I have to do”

“Physically exhausted at work”

“Lacking in enthusiasm at work”

“Emotionally exhausted at work”

“I feel emotionally drained from my work”

“I feel used up at the end of the workday”

“I feel fatigued when I get up in the morning and have to face another day on the job”

“Working with people all day is really a strain for me”

“I feel burned out from my work”

“I feel frustrated by my job”

“I feel I'm working too hard on my job”

“Working with people directly puts too much stress on me”

“I feel like I'm at the end of my rope”

“Using your own definition of ‘burnout,’ please choose one of the options below”

“I felt worthless”

“I felt helpless”

“I felt depressed”

“I felt hopeless”

**Work Exhaustion  
subscale of PFI**

**Emotional Exhaustion  
subscale of MBI**

**Mini Z Burnout Survey**

**Depression**

## (2) Burnout – Depersonalization Measures

### Assessment Item Wording

“Less empathetic with my patients”

“Less empathetic with my colleagues”

“Less sensitive to others' feelings/emotions”

“Less interested in talking with my patients”

“Less connected with my patients”

“Less connected with my colleagues”

“I feel I treat some patients as if they were impersonal objects”

“I've become more callous toward people since I took this job”

“I worry that this job is hardening me emotionally”

“I don't really care what happens to some patients”

“I feel patients blame me for some of their problems”

“I felt worthless”

“I felt helpless”

“I felt depressed”

“I felt hopeless”

**Interpersonal  
Disengagement  
subscale of PFI**

**Depersonalization  
subscale of MBI**

**Depression**

# (1) Work/Emotional Exhaustion

Assessment Item Wording	Burnout	Depression
"A sense of dread when I think about work I have to do"	<b>0.67</b>	0.17
"Physically exhausted at work"	<b>0.72</b>	0.02
"Lacking in enthusiasm at work"	<b>0.65</b>	0.15
"Emotionally exhausted at work"	<b>0.77</b>	0.08
"I feel emotionally drained from my work"	<b>0.92</b>	-0.09
"I feel used up at the end of the workday"	<b>0.96</b>	-0.20
"I feel fatigued when I get up in the morning and have to face another day on the job"	<b>0.83</b>	-0.02
"Working with people all day is really a strain for me"	<b>0.62</b>	0.13
"I feel burned out from my work"	<b>0.88</b>	0.02
"I feel frustrated by my job"	<b>0.86</b>	-0.02
"I feel I'm working too hard on my job"	<b>0.86</b>	-0.09
"Working with people directly puts too much stress on me"	<b>0.49</b>	0.24
<b>"I feel like I'm at the end of my rope"</b>	<b>0.46</b> ~	<b>0.40</b> =
"Using your own definition of 'burnout,' please choose one of the options below"	<b>0.75</b>	0.12
"I felt worthless"	-0.06	<b>0.90</b>
"I felt helpless"	0.06	<b>0.86</b>
"I felt depressed"	0.17	<b>0.74</b>
"I felt hopeless"	0.01	<b>0.91</b>

## (2) Depersonalization/Interpersonal Disengagement

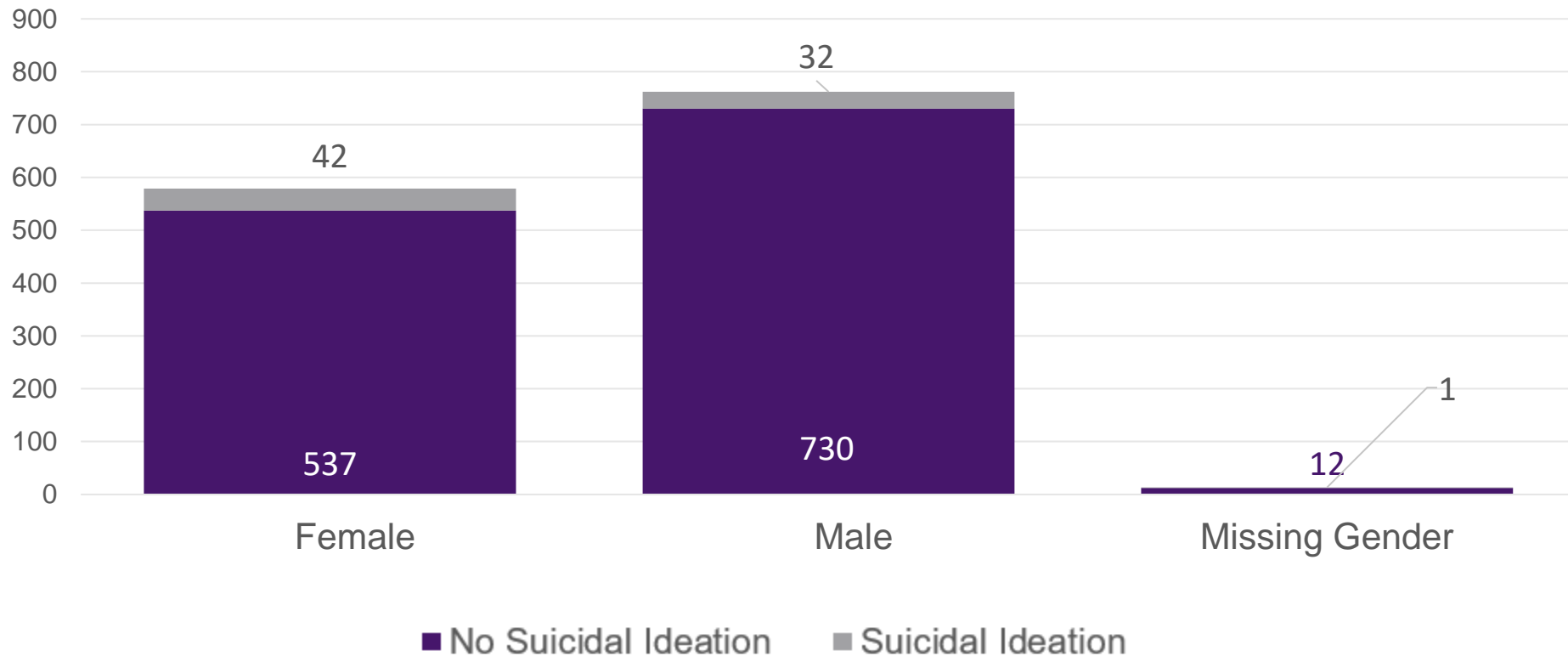
Assessment Item Wording	Burnout	Depression
"Less empathetic with my patients"	<b>0.89</b>	-0.09
"Less empathetic with my colleagues"	<b>0.67</b>	0.15
"Less sensitive to others' feelings/emotions"	<b>0.82</b>	0.01
"Less interested in talking with my patients"	<b>0.87</b>	-0.06
"Less connected with my patients"	<b>0.90</b>	-0.08
"Less connected with my colleagues"	<b>0.58</b>	0.27
"I feel I treat some patients as if they were impersonal objects"	<b>0.77</b>	-0.05
"I've become more callous toward people since I took this job"	<b>0.79</b>	0.05
"I worry that this job is hardening me emotionally"	<b>0.72</b>	0.16
"I don't really care what happens to some patients"	<b>0.63</b>	-0.03
"I feel patients blame me for some of their problems"	<b>0.60</b>	0.00
"I felt worthless"	-0.02	<b>0.87</b>
"I felt helpless"	0.00	<b>0.90</b>
"I felt depressed"	0.10	<b>0.81</b>
"I felt hopeless"	-0.02	<b>0.93</b>



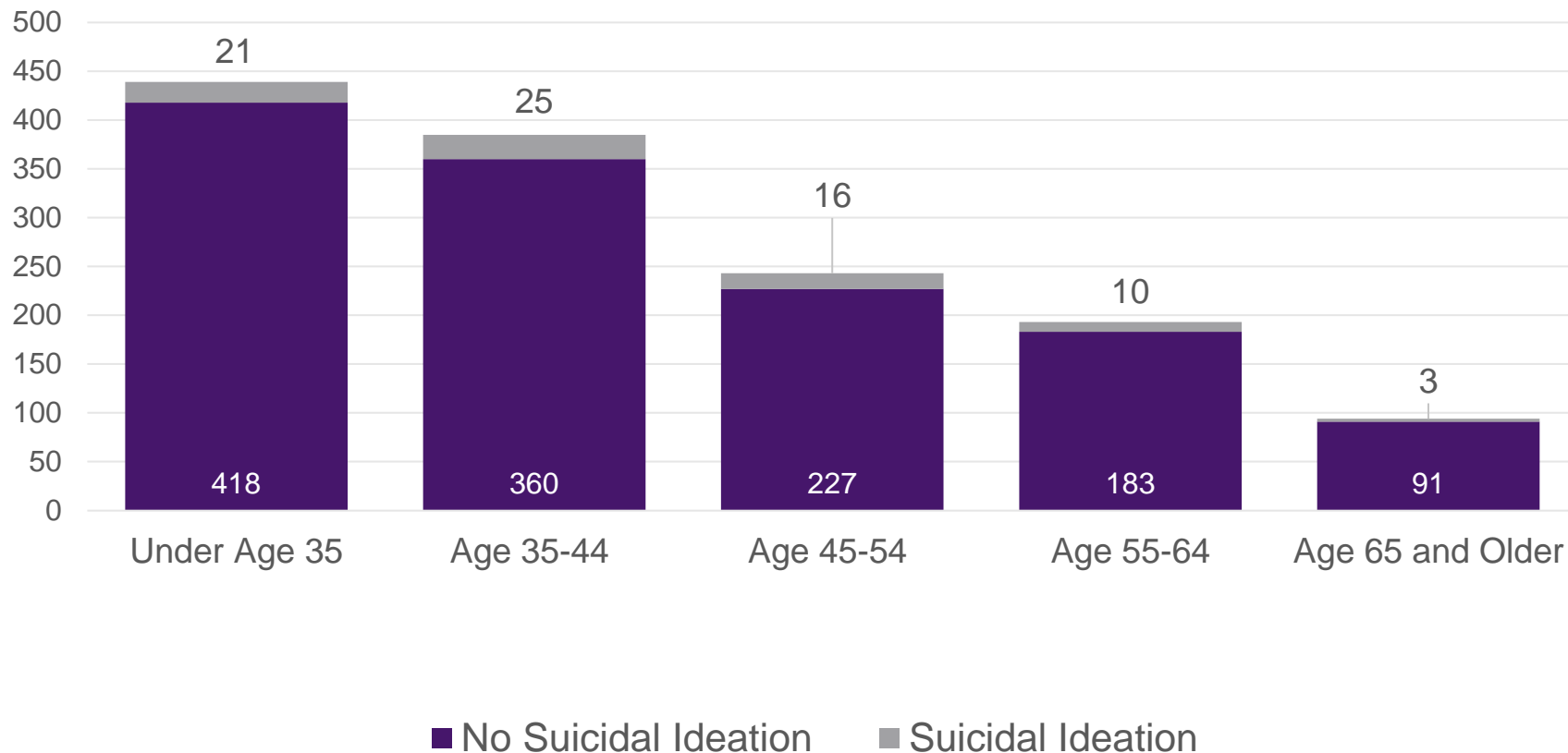
## Suicidal Ideation

“During the past 12 months, have you had thoughts of taking your own life?”

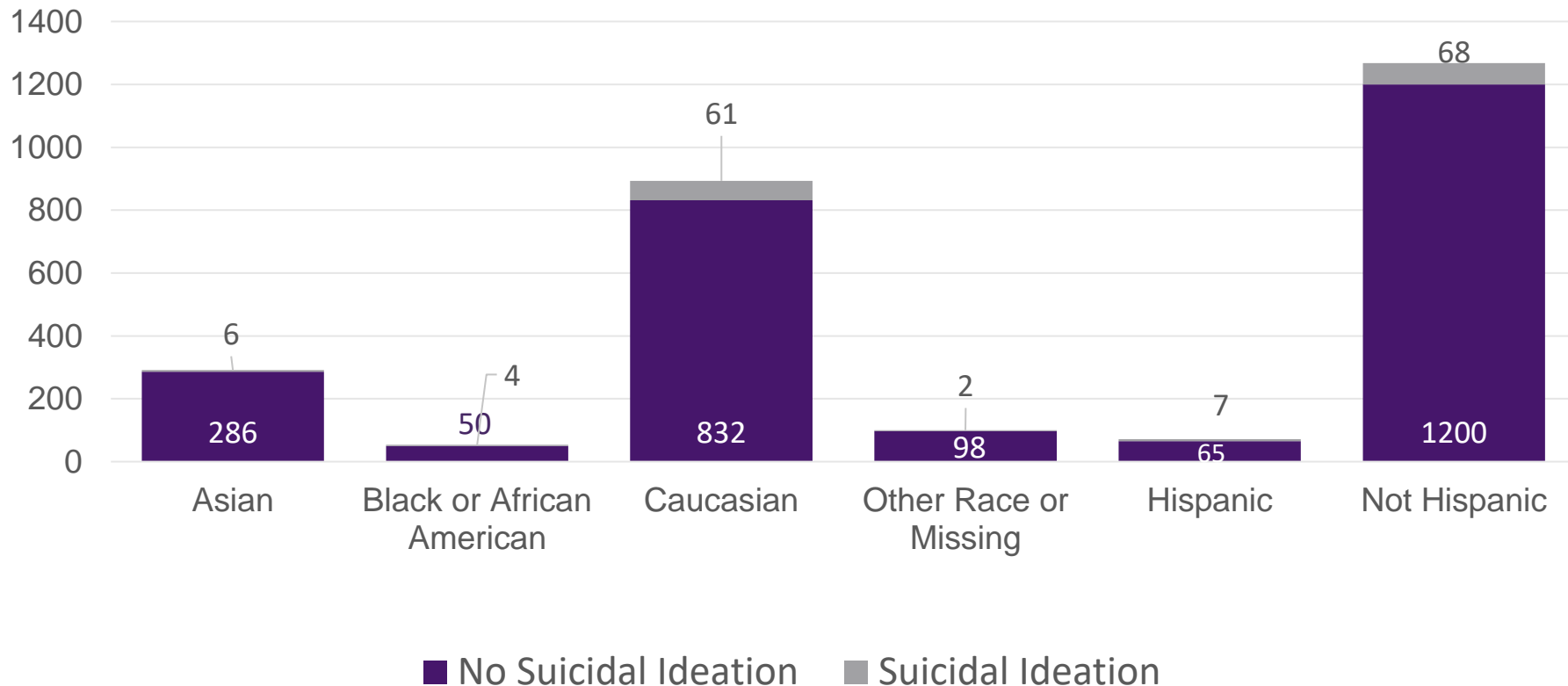
# Prevalence of Suicidal Ideation by Gender



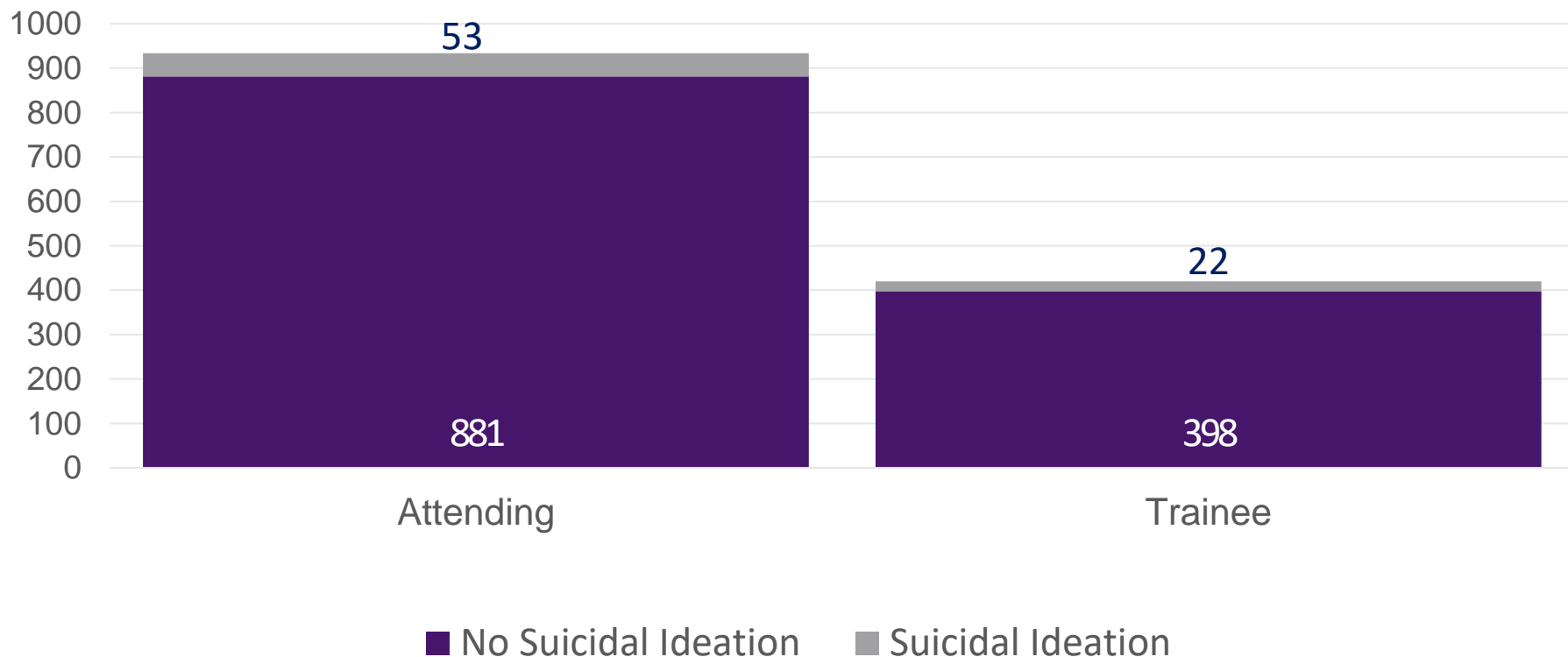
# Prevalence of Suicidal Ideation by Age



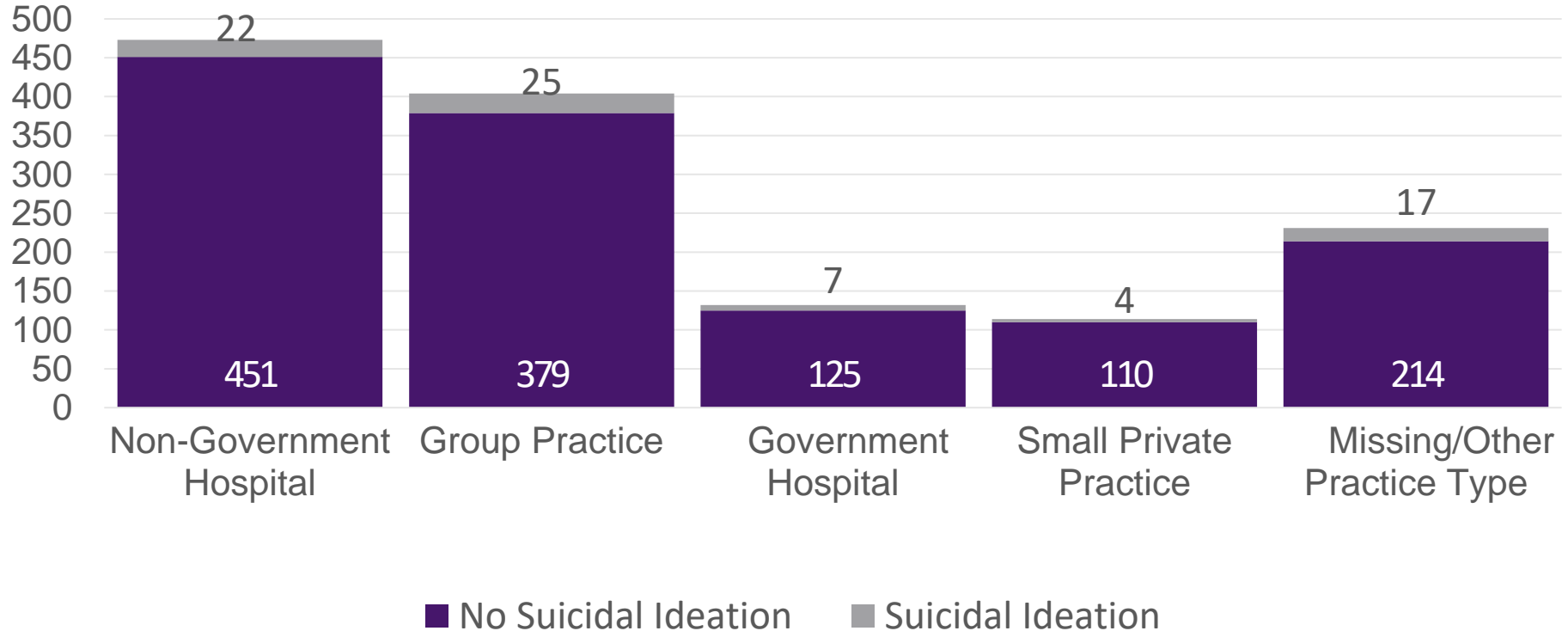
# Prevalence of Suicidal Ideation by Race & Ethnicity



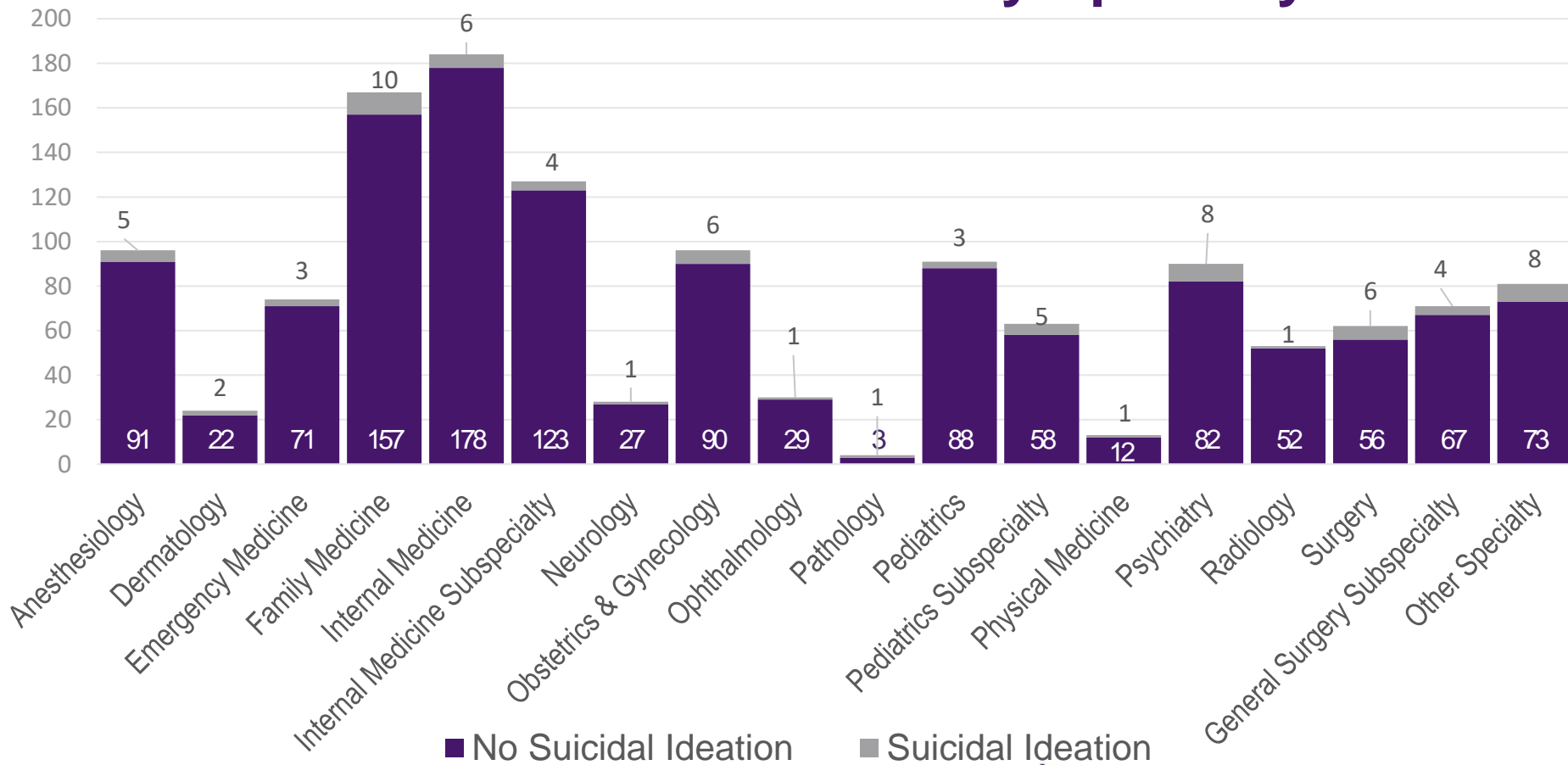
# Prevalence of Suicidal Ideation by Training Status



# Prevalence of Suicidal Ideation by Practice Type

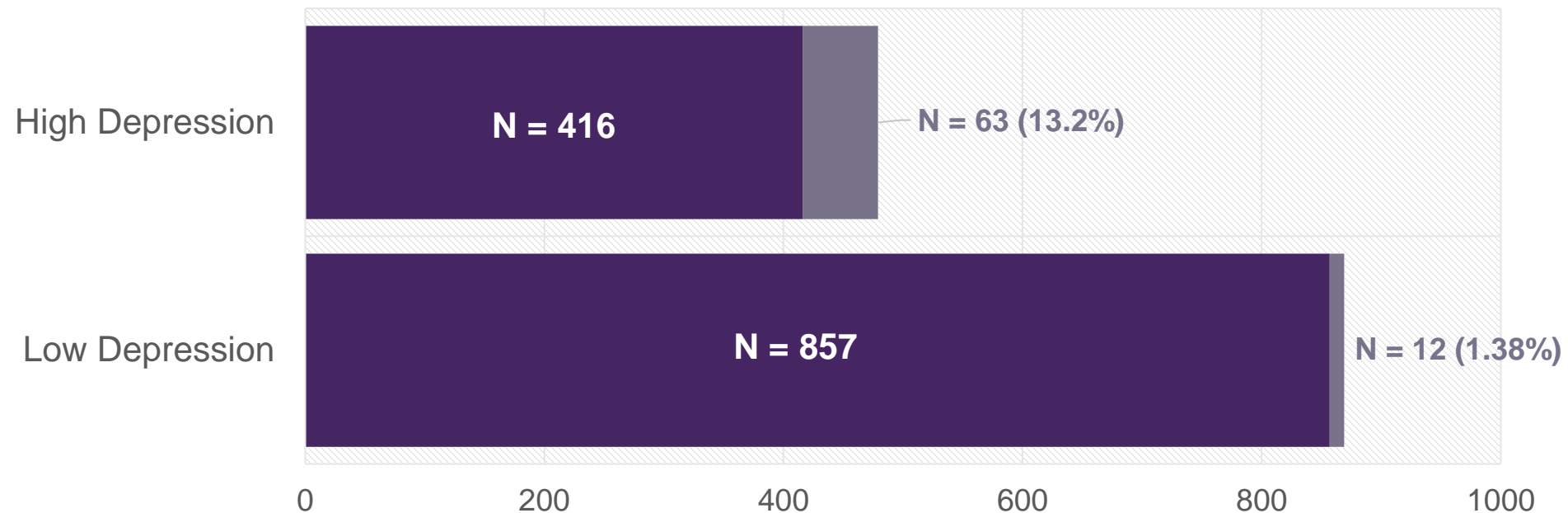


# Prevalence of Suicidal Ideation by Specialty





# Suicidal Ideation by Depression Category in 1354 Practicing Physicians from the AMA Masterfile



**Depression** (PROMIS Depression short form measure) - high: scores  $\geq 8$ ; low: scores  $< 8$   
**Burnout** (Stanford Professional Fulfillment Index, 0-10 scale for overall burnout) - high: scores  $\geq 3.325$ ; low: scores  $< 3.325$

# Logistic Regression Model: Association Between Burnout and Suicidal Ideation (*Odds Ratio, 95% Confidence Interval*)

Burnout Measure or Subscale	Unadjusted	Adjusted for Depression	Adjusted for depression, gender, race, training, age
Burnout ( <i>Stanford Professional Fulfillment Index</i> )	1.85 (1.47- 2.31)	0.85 (0.63-1.17)	0.88 (0.64-1.22)
Work Exhaustion ( <i>Stanford Professional Fulfillment Index</i> )	1.92 (1.52-2.41)	0.85 (0.62-1.16)	0.83 (0.60-1.15)
Interpersonal Disengagement ( <i>Stanford Professional Fulfillment Index</i> )	1.66 (1.33-2.07)	0.89 (0.67-1.18)	0.94 (0.70-1.26)
Emotional Exhaustion ( <i>Maslach Burnout Inventory</i> )	2.16 (1.69-2.75)	1.03 (0.75-1.41)	0.94 (0.68-1.31)
Depersonalization ( <i>Maslach Burnout Inventory</i> )	1.82 (1.48-2.25)	1.08 (0.84-1.40)	1.12 (0.86-1.46)

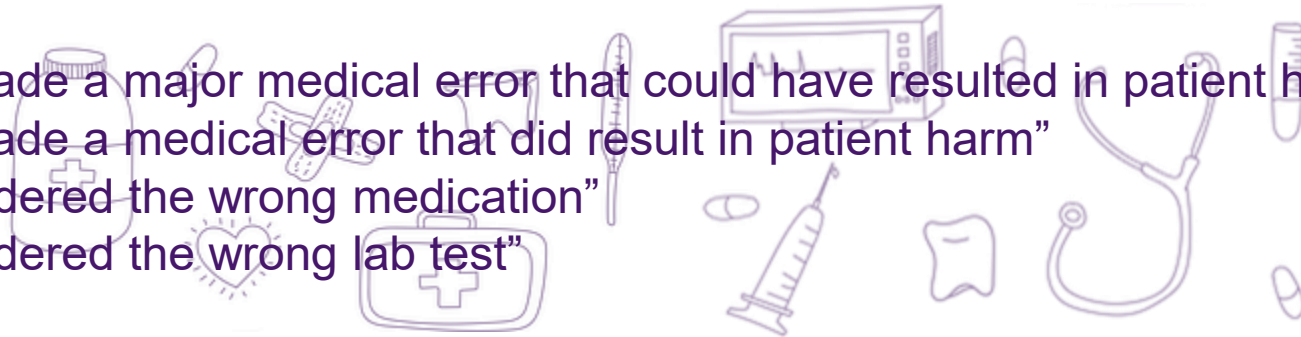
## Self-Reported Medical Error

“I made a major medical error that could have resulted in patient harm”

“I made a medical error that did result in patient harm”

“I ordered the wrong medication”

“I ordered the wrong lab test”



**A score of 4 corresponds to a response of “*within my lifetime*” across all items, or a more recent error in at least one category (range 0 – 20)**

**High Error Category: 750 scored  $\geq 4$  on self-reported medical error scale**

**266 (35%)** indicated an error in at least one category **in the previous year**

**136 (18%)** indicated an error in at least one category **in the previous month**

**193 (26%)** indicated an error in at least one category **in the previous 3 months**

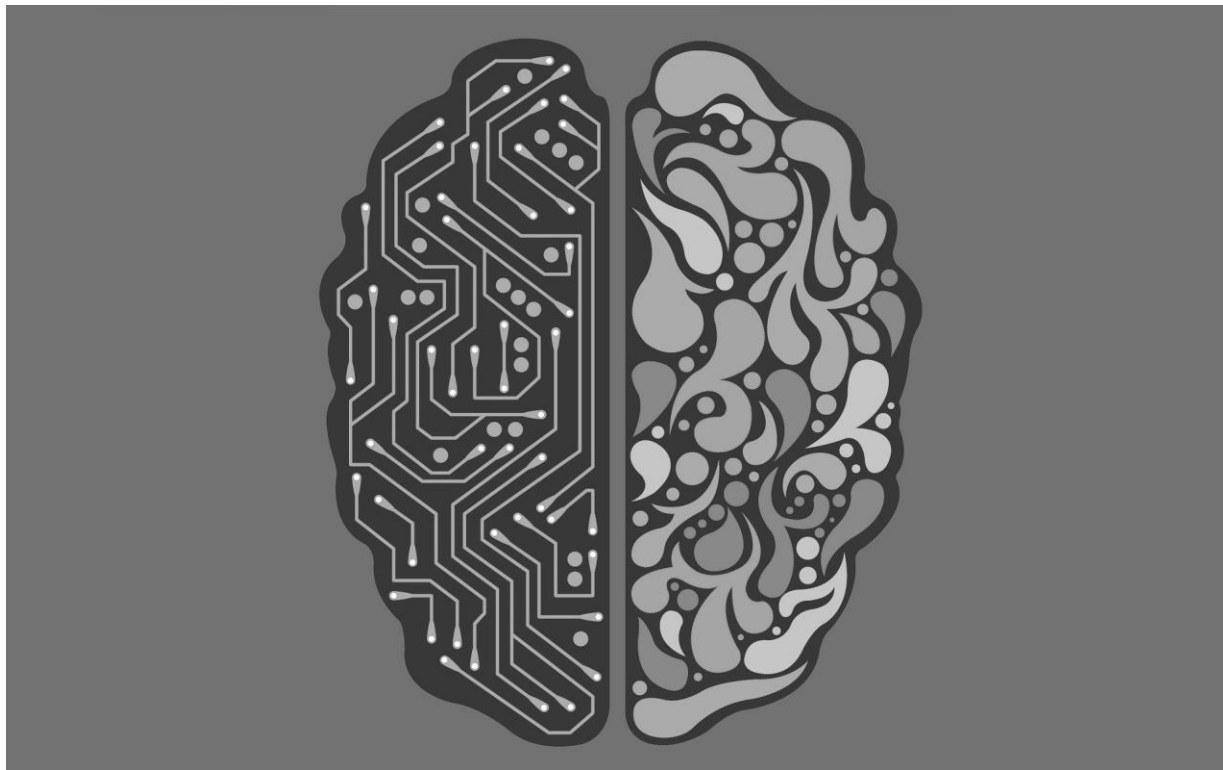
**80 (11%)** indicated an error in at least one category **in the previous week**

**75 (10%)** indicated an error in all four categories **in their lifetime**

# Logistic Regression Model: Association Between Depression and Error (Odds Ratio, 95% CI)

Measure	Unadjusted	Adjusted for Burnout	Adjusted for burnout, gender, race, training, age
Depression ( <i>PROMIS Short Form</i> )	1.27 (1.14-1.43)	1.01 (0.88-1.16)	1.06 (0.91-1.22)

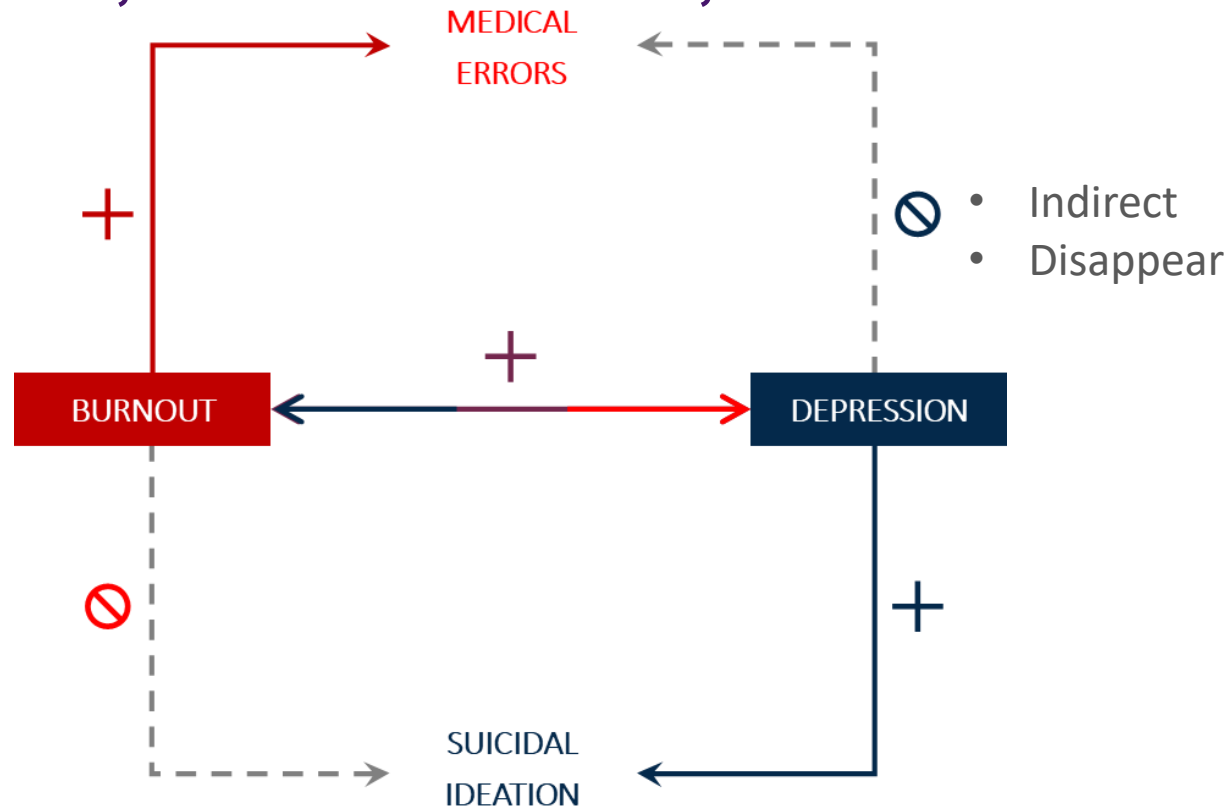
# Depression—not burnout—is directly associated with greater suicidal ideation in physicians



# Burnout—not depression—is directly associated with an increased risk of self-reported medical errors in physicians



# Relationships between physician burnout, depression, suicidal ideation, and medical errors





# Future Research Directions

- Does burnout represent an upstream intervention target, to prevent suicidal ideation by preventing depression?

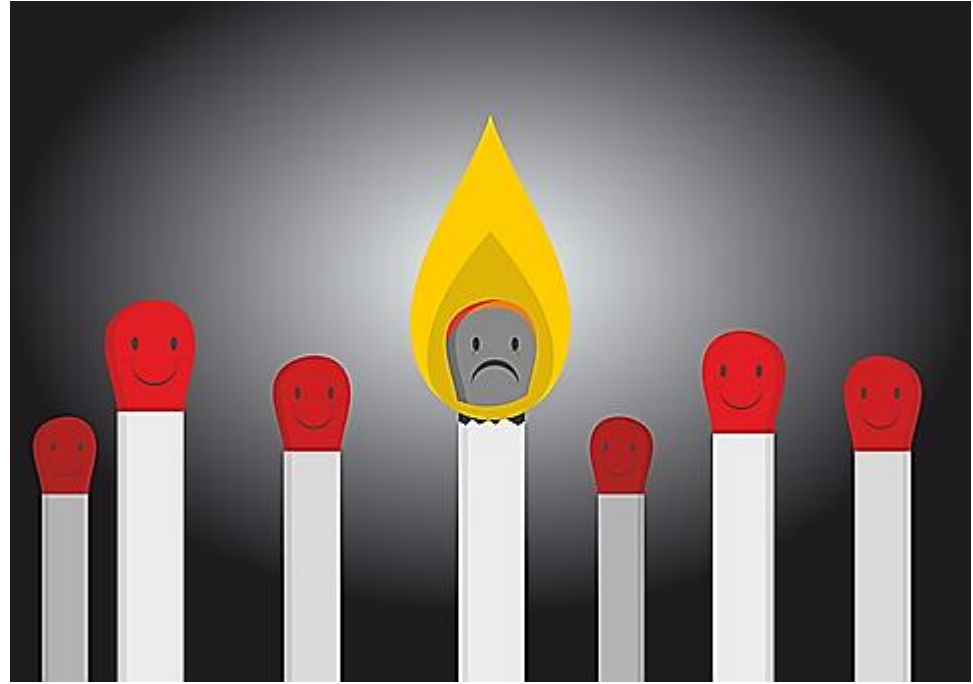


**Burnout and Depression are different**



# WHO Definition

- Burnout is an occupational distress syndrome
  - ≠ clinical psychiatric diagnosis indicating distress in multiple life domains



1. World Health Organization. *International Classification of Diseases, 11th Revision (ICD-11)*. <https://www.who.int/classifications/icd/en/>

# Depression is associated with serious medical morbidity



# The association of burnout with suicidal ideation is either

- 1) the result of confounding effects with concurrent depression
- 2) is indirect and proportional to the degree that burnout causes depression

1. 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. doi:[10.7326/0003-4819-149-5-200809020-00008](https://doi.org/10.7326/0003-4819-149-5-200809020-00008)
2. Shanafelt TD, Balch CM, Dyrbye L, et al. Special report: suicidal ideation among American surgeons. *Arch Surg.* 2011;146(1):54-62. doi:[10.1001/archsurg.2010.292](https://doi.org/10.1001/archsurg.2010.292)
3. Casey PR, Dunn G, Kelly BD, et al; ODIN Group. Factors associated with suicidal ideation in the general population: five-centre analysis from the ODIN study. *Br J Psychiatry.* 2006;189(5):410-415. doi:[10.1192/bjp.bp.105.017368](https://doi.org/10.1192/bjp.bp.105.017368)

# The Relationship Between Burnout, Depression, and Anxiety: A Systematic Review and Meta-Analysis

*Panagiota Koutsimani, Anthony Montgomery\* and Katerina Georganta*

**Conclusions:** Our research aims to clarify the relationship between burnout–depression and burnout–anxiety relationships. Our findings revealed no conclusive overlap between burnout and depression and burnout and anxiety, indicating that they are different and robust constructs. Future studies should focus on utilizing more longitudinal designs in order to assess the causal relationships between these variables.

# Burnout without concurrent depression

- May not be associated with increased suicide risk
- Can be safely addressed outside of mental health care
  - alongside interventions to reduce stigma and promote help seeking among physicians experiencing depression





# Burnout without concurrent depression

- May not be associated with increased suicide risk
- Can be safely addressed outside of mental health care
  - alongside **medical evaluation and evidence-based clinical treatment** for physicians experiencing depression





# Burnout without concurrent depression

- Is linked to characteristics of the work environment
  - excessive demands
  - inadequate resources
- may be more important than depression for occupational consequences



1. 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. doi:[10.7326/0003-4819-149-5-200809020-00008](https://doi.org/10.7326/0003-4819-149-5-200809020-00008)
2. Shanafelt TD, Balch CM, Dyrbye L, et al. Special report: suicidal ideation among American surgeons. *Arch Surg.* 2011;146(1):54-62. doi:[10.1001/archsurg.2010.292](https://doi.org/10.1001/archsurg.2010.292)
3. Casey PR, Dunn G, Kelly BD, et al; ODIN Group. Factors associated with suicidal ideation in the general population: five-centre analysis from the ODIN study. *Br J Psychiatry.* 2006;189(5):410-415. doi:[10.1192/bjp.bp.105.017368](https://doi.org/10.1192/bjp.bp.105.017368)

doi: 10.1007/s11606-016-3886-9. Epub 2016 Oct 26.

# The Relationship Between Professional Burnout and Quality and Safety in Healthcare: A Meta-Analysis

Michelle P Salyers<sup>1 2</sup>, Kelsey A Bonfils<sup>3 4</sup>, Lauren Luther<sup>3 4</sup>, Ruth L Firmin<sup>3 4</sup>,  
Dominique A White<sup>3 4</sup>, Erin L Adams<sup>3 4</sup>, Angela L Rollins<sup>3 4 5</sup>

**Results:** Eighty-two studies including 210,669 healthcare providers were included. Statistically significant negative relationships emerged between burnout and quality ( $r = -0.26$ , 95 % CI [-0.29, -0.23]) and safety ( $r = -0.23$ , 95 % CI [-0.28, -0.17]). In both cases, the negative relationship implied that greater burnout among healthcare providers was associated with poorer-quality healthcare and reduced safety for patients. Moderators for the quality relationship included dimension of burnout, unit of analysis, and quality data source. Moderators for the relationship between burnout and safety were safety indicator type, population, and country. Rigor of the study was not a significant moderator.

# Burnout is ideally addressed through system-based occupational interventions



# Stanford WellMD Model of Professional Fulfillment



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**Thank You**



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Mickey Todd Trockel, MD, PhD



Niki Menon, BA

# The following AMA resources are available to support your physicians and staff:

- [Caring for Caregivers during COVID-19](#)
- [AMA COVID-19 Resource Page for Physicians](#)
- [JAMA COVID-19 Collection](#)
- [Steps Forward™](#)
- [Telehealth Implementation Playbook](#)
- [Behavioral health integration in physician practices](#)

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# Upcoming programming

- May 19      Health care well-being and burnout during COVID-19: Findings from a national survey  
Kyra Cappelucci
- May 20      Adopting OpenNotes  
Catherine DesRoches, DrPH
- May 25      Measuring the value of virtual care  
Vimal Mishra, MD

For questions, please email:  
[STEPSForward@ama-assn.org](mailto:STEPSForward@ama-assn.org)





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