

Prevalence and Predictors of Burnout Among Resident Family Physicians

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HOW TO CITE: Doe S, Coutinho A, Weidner A, et al. Prevalence and Predictors of Burnout Among Resident Family Physicians. *Fam Med.* 2023;56(3):148–155. doi: [10.22454/FamMed.2024.875388](https://doi.org/10.22454/FamMed.2024.875388)

PUBLISHED: 17 January 2024

KEYWORDS: family practice, internship and residency, professional burnout

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ABSTRACT

Background and Objectives: Resident burnout may affect career choices and empathy. We examined predictors of burnout among family medicine residents.

Methods: We used data from the 2019–2021 American Board of Family Medicine Initial Certification Questionnaire, which is required of graduating residents. Burnout was a binary variable defined as reporting callousness or emotional exhaustion once a week or more. We evaluated associations using bivariate and multilevel multivariable regression analyses.

Results: Among 11,570 residents, 36.4% (n=4,211) reported burnout. This prevalence did not significantly vary from 2019 to 2021 and was not significantly attributable to the residency program (ICC=0.07). Residents identifying as female reported higher rates of burnout (39.0% vs 33.4%, AOR=1.29 [95% CI 1.19–1.40]). Residents reporting Asian race (30.5%, AOR=0.78 [95% CI 0.70–0.86]) and Black race (32.3%, AOR=0.71 [95% CI 0.60–0.86]) reported lower odds of burnout than residents reporting White race (39.2%). We observed lower rates among international medical graduates (26.7% vs 40.3%, AOR=0.54 [95% CI 0.48–0.60]), those planning to provide outpatient continuity care (36.0% vs 38.7%, AOR=0.77 [95% CI 0.68–0.86]), and those at smaller programs (31.7% for <6 residents per class vs 36.3% for 6–10 per class vs 40.2% for >10 per class). Educational debt greater than \$250,000 was associated with higher odds of burnout than no debt (AOR=1.29 [95% CI 1.15–1.45]).

Conclusions: More than one-third of recent family medicine residents reported burnout. Odds of burnout varied significantly with resident and program characteristics.

INTRODUCTION

At a moment of worsening physician shortage,¹ the integrity of the physician trainee pipeline has become even more important to maintaining health care access. Burnout among physicians increased dramatically and rapidly in the wake of the COVID-19 pandemic.² Prior work connecting physician burnout to reductions in clinical hours has supported the perception that this increase in burnout is worsening the physician shortage.^{3,4} Specifically, a 2021 cross-sectional study evaluating the effects of COVID-19 on the physician workforce found that one in three physicians planned on cutting back clinical hours and one in five planned on leaving their practice altogether.⁵

Primary care has been especially impacted by physician burnout and workforce shortages. Even before COVID-19,

burnout was disproportionately prevalent among primary care physicians,^{6,7} with demonstrated correlations with excessive workload, increased documentation and administrative burden, decreased sense of meaning, and the professional dissonance that results from working in a system with values different from one's own.^{3,8,9} The physician shortage is similarly more dire in primary care, especially in rural and urban underserved areas.^{1,10,11} Researchers have identified a county-level decrease in life expectancy associated with a low density of primary care physicians,¹² highlighting as a pressing public health issue the dramatic impact of COVID-19 on burnout and turnover among an already overburdened primary care physician workforce.^{13,14}

Besides the workforce implications, burnout impacts resident physicians' ability to serve their current patients. Burnout affects residents' clinical performance^{15,16} and wears on their empathy.¹⁷ Researchers have observed that burnout symptoms increase during the first year of family medicine residency and stay elevated through graduation.¹⁸ Burnout symptoms among family medicine residents have been correlated with workload, stress regarding patient care, feelings of isolation, poor work-life balance, inadequate support from residency programs, and debt burden.^{19–22}

Measuring and addressing family medicine resident burnout are critical to ensuring their ability to fill the gaps in the physician workforce. Current estimates of resident burnout rely on regional or institutional surveys, often with low response rates and susceptible to selection bias.²² We sought to better characterize burnout among graduating family medicine residents using a national data source that assesses self-reported burnout with a 100% response rate, avoiding questions about the impact of burnout on a participant's likelihood to respond to a survey. The objectives of this study were to assess overall burnout prevalence at the end of residency training and to examine the association of burnout with characteristics of individual residents, such as race, ethnicity, gender, international medical graduate (IMG) status, debt level, class size, and postgraduation career plans. To further explore factors associated with burnout, we aimed to evaluate the contribution of respondents' individual residency programs to their odds of burnout.

METHODS

The American Board of Family Medicine (ABFM) Initial Certification Questionnaire is completed online by all family physicians in their last year of residency training seeking ABFM certification as they register for their initial ABFM Certification Exam.²³ The Initial Certification Questionnaire asks participants about their demographics (including race and ethnicity), educational debt, burnout, planned practice setting, and plans for fellowship training, among other questions. Specifically, the question to determine participants' race was "Select the race with which you most identify," with six multiple-choice options including American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, or Other. Participants selected ethnicity from two options: non-Hispanic, or Hispanic or Latino. Because of small sample sizes, we combined American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Other into an Other category. We obtained additional demographic information (ie, gender identity, degree type, US vs international training) from ABFM administrative databases. We calculated residency size based on ABFM data and categorized it as fewer than 6, 6–10, and more than 10 residents per year. We assigned rural residency status using the Rural Training Track Collaborative database. For this project, we used data from the 2019, 2020, and 2021 registration cohorts.

Measure of Burnout

Residents responded using a seven-point Likert scale, ranging from never to every day, to the following statements: (1) "I feel burned out from my work," and (2) "I have become more callous toward people since I took this job." Consistent with earlier research, we defined burnout as responding once a week or more frequently to either of these questions.^{24,25} Most research on occupational burnout uses a variation of the Maslach Burnout Inventory (MBI).²⁶ In much physician burnout research, as in our study, we substituted the full copyrighted 22-item MBI questionnaire for a two-item questionnaire that addressed emotional exhaustion and/or depersonalization because these two components of burnout have been shown to correlate with responses to the full MBI^{24,25,27} and with outcomes of burnout^{20,24,28} in this population.

Analysis

We calculated the percentage of residents reporting burnout by year. We used t tests and χ^2 tests to conduct bivariate analysis of the difference in prevalence of burnout by resident and residency characteristics. In preliminary analyses of burnout over time, we found that residents in new and closing programs reported higher levels of burnout. We therefore added a variable for program opening and closure to our multivariate analysis. To assess the need for multilevel modeling, we also calculated the intraclass correlation coefficient (ICC) for burnout by residency program. We then used multilevel multivariable regression to determine independent adjusted associations between burnout and characteristics of residents and their residency programs while controlling for the other variables measured. Multilevel modeling accounted for the clustering of residents within the same residency. The American Academy of Family Physicians Institutional Review Board approved this study. We conducted all analyses in SAS version 9.0 (SAS Institute).

RESULTS

We excluded a small number of respondents who took the exam more than once ($n=51$) and those with unknown gender ($n=2$), resulting in a total of 11,570 resident family physicians in our final analytic cohort.

In total, 36.4% of our sample reported symptoms of burnout ($n=4,211$). This prevalence did not vary from 2019 to 2021 (Table 1). Bivariate and adjusted associations between study variables and burnout are shown in Tables Table 2 and Table 3, respectively. Respondents that identified as female reported burnout at a rate of 39.0% versus 33.4% among male residents (AOR=1.29 [95% CI 1.19–1.40]). Residents reporting Asian race (30.5%, AOR=0.78 [95% CI 0.70–0.86]) and Black race (32.3%, AOR=0.71 [95% CI 0.60–0.86]) reported lower odds of burnout than residents reporting White race (39.2%). While 26.7% of IMG residents reported burnout, 40.3% of residents who attended medical school in the United States reported burnout (AOR=0.54 [95% CI 0.48–0.60]). Residents with plans to provide outpatient continuity care reported a burnout rate of 36.0%, compared to 38.7% among those not

planning to provide outpatient continuity care (AOR=0.77 [95% CI 0.68–0.86]). Educational debt exceeding \$250,000 was associated with higher relative odds of burnout than no debt (AOR=1.29 [95% CI 1.15–1.45]). Smaller program size also was associated with lower prevalence of burnout (31.7% for those at programs with <6 residents per class vs 36.3% for those with 6–10 per class and 40.2% for those with >10 per class, $P<.0001$). Residents at programs with fewer than 6 residents per class had significantly lower odds of burnout compared to those with 6 to 10 per class (AOR 0.86 [95% CI 0.76–0.99]).

TABLE 1. Prevalence of Burnout Among Family Medicine Residents in the Final Year of Training

Year	Not burned out, n (%)	Burned out, n (%)	Total
2019	2,305 (62.9)	1,360 (37.1)	3,665
2020	2,472 (64.4)	1,367 (35.6)	3,839
2021	2,582 (63.5)	1,484 (36.5)	4,066
Total	7,359 (63.6)	4,211 (36.4)	11,570

The ICC for burnout by residency program was 0.07, indicating that 7% of a resident physician's odds of burnout was attributable to which residency program they were in.²⁹ For context, using a different statistical technique, 35% of a resident's likelihood to meet expected milestone assessments was found to be attributable to their residency program.^{30,31} This relatively small ICC implies that the issue of resident burnout is bigger than troubled outlier programs. Rather, there are structural issues in the overall system in which residents are trained. This implication does not mean that we should not be looking for outlier programs—both positive and negative—because they may offer us lessons in mitigating burnout in training.

DISCUSSION AND CONCLUSIONS

More than one-third of family medicine residents reported burnout in their final year of training. This high rate of burnout is comparable to that seen in other studies of residents³² and attending physicians,²⁶ suggesting that factors in our health care system impact both groups of physicians. This high prevalence of burnout among family medicine residents validates the concern that the next generation of physicians may not fill the critical gaps in the workforce already weakened by primary care physicians leaving clinical medicine in record numbers.^{5,13,14}

Identifying resident characteristics associated with burnout has implications for the health care system. Specifically, less burnout was noted among family medicine graduates with plans to pursue outpatient continuity care. While our study design was unable to determine the direction of causality in this relationship, one might theorize that burnout discourages graduates from pursuing primary care, where they are needed most.^{3,6,7} Other related studies similarly have found higher rates of burnout among primary care physicians. One plausible explanation is that residents struggling with burnout

may recognize this hazard and choose to avoid this practice setting, resulting in relatively lower odds of burnout among those who plan to pursue outpatient continuity care.

Interestingly, our analysis did not demonstrate significant change in burnout rate over the data collection period, despite spanning the onset of the COVID-19 pandemic. At first glance, this finding seems to contrast with other research showing an increase in burnout with the systemwide stressors brought on by the pandemic.^{2,33} However, the only cohort in our study affected by the pandemic, the 2021 cohort, completed the questionnaire as they registered for their ABFM exam in late 2020 or early 2021. Our results, therefore, do not reflect the effects of the Omicron and Delta surges, subsequent widespread staffing shortages, and rebound upticks in patient volume.

Our findings confirmed a relationship between increased debt burden and higher levels of burnout consistent with prior studies of medical trainees.^{20,34} Other studies have shown that a high ratio of cost of living to residency salary correlated with burnout among resident family physicians, suggesting that financial stress may influence burnout in this population.³⁵ Our findings, combined with the evidence that high student debt pushes medical students away from lower paid specialties such as primary care and from practice settings serving vulnerable populations,^{34,36} highlight mounting educational debt among physicians as a public health issue.

The higher rate of burnout among physicians who identified as female was consistent with prior research and is a concern for a primary care workforce that is increasingly female.³⁷ This inequity underscores the importance of addressing factors that contribute to disparate residency experiences along gender lines, including experiences of sexism in the workplace,^{38,39} weak parental leave and workplace breast-pumping protections,⁴⁰ unequal division of household labor,⁴¹ and increased rates of miscarriage, preterm birth, and other obstetric complications associated with long and irregular shifts.^{42,43}

Identifying as White race was correlated with higher levels of burnout compared to identifying as other racial categories. This finding has been noted in other cross-sectional surveys assessing physician burnout.^{44–46} Given the extensive research documenting the additional burdens placed on physicians of color both inside and outside the workplace,^{47–49} this finding is remarkable. Some of the proposed explanations for this finding in other studies,^{45,46} such as selection bias in survey response and lack of control for practice setting, practice scope, debt,⁵⁰ specialty, and practice type, do not apply to our study design. Proposed theories include that greater attrition of premedical and medical students from racial and ethnic groups underrepresented in medicine^{51,52} selects for resiliency among physicians from these groups⁴⁵ or that the greater interest in underserved medicine among underrepresented groups^{45,53} and higher satisfaction with work-life balance may be protective.⁴⁴

Similarly, IMG status was protective from burnout. This finding has been noted in other samples of resident and fellow physicians.^{21,42,54} Other authors have suggested that

TABLE 2. Prevalence of Burnout Among Subgroups of 11,570 Family Medicine Residents, 2019–2021

Variable	Not burned out (n=7,359), n (%)	Burned out (n=4,211), n (%)	P value
Age in years (mean, SD)	32.5 (4.3)	32.2 (3.7)	.0008
Gender			<.0001
Female	3,817 (61.0)	2,436 (39.0)	
Male	3,542 (66.6)	1,775 (33.4)	
Degree type			.4900
DO	1,869 (63.1)	1,094 (36.9)	
MD	5,490 (63.8)	3,117 (36.2)	
International medical graduate			<.0001
Yes	2,411 (73.4)	876 (26.7)	
No	4,948 (59.7)	3,335 (40.3)	
Race			<.0001
White	4,271 (60.8)	2,749 (39.2)	
Asian	1,817 (69.5)	798 (30.5)	
Black or African American	5,84 (67.7)	279 (32.3)	
Other	687 (64.1)	385 (35.9)	
Ethnicity			.0500
Hispanic or Latino	730 (66.4)	370 (33.6)	
Non-Hispanic	6,629 (63.3)	3,841 (36.7)	
Educational debt (USD)			.0003
None	1,370 (66.8)	680 (33.2)	
<74,999	562 (64.4)	311 (35.6)	
74,999–250,000	1,989 (64.6)	1,090 (35.4)	
>250,000	3,438 (61.7)	2,130 (38.3)	
Plan to do outpatient continuity care			.0400
Yes	6,352 (64.0)	3,575 (36.0)	
No	1,007 (61.3)	636 (38.7)	
Fellowship intention			.0007
Yes	1,229 (61.6)	765 (38.4)	
No	5,223 (64.7)	2,849 (35.3)	
Unsure	907 (60.3)	597 (39.7)	
Residency rural status			.5500
Rural	450 (64.7)	246 (35.3)	
Nonrural	6,909 (63.5)	3,965 (36.5)	
Program size (residents per year)			<.0001
<6	1,277 (68.29)	593 (31.7)	
6–10	4,575 (63.72)	2,605 (36.3)	
>10	1,507 (59.80)	1,013 (40.2)	

Note: Statistically significant results are bolded.

this finding may be in part attributable to significantly less debt; however, in our data, the protective effect persists in the multivariate analysis controlling for debt. Due to the higher rate at which IMGs go unmatched into residency programs, one possibility is that IMGs feel more gratitude or perceive more personal success after a successful match, and these positive emotions may be protective. Alternatively, the increased barriers to a successful match may select for more resilient residents. Further research is needed to better explain this finding.

Lastly, small class size was correlated with lower rates of burnout. Other studies have identified associations between resident burnout and feelings of isolation, poor work environment, and lack of program support.^{19,22} Smaller programs possibly allow for closer relationships between residents and prevent the development of a poor work environment. Additionally, administrators and faculty might be able to better support residents when there are fewer of them. More research is needed to better understand this relationship.

TABLE 3. Association Between Burnout and Characteristics of Resident and Residency Program Using Multivariate Regression Model Among Family Medicine Residents in the Final Year of Training, 2019–2021

Variable	AOR (95% CI)
Exam year	
2019	1.03 (0.93, 1.13)
2020	0.96 (0.87, 1.05)
2021	REF
Age (in years)	
≥34	1.08 (0.98, 1.18)
<34	REF
Gender	
Female	1.29 (1.19, 1.40)
Male	REF
Degree type	
DO	0.82 (0.74, 0.91)
MD	REF
International medical graduate	
No	REF
Yes	0.54 (0.48, 0.60)
Race	
Black	0.71 (0.60, 0.83)
Asian	0.78 (0.70, 0.86)
White	REF
Other	1.02 (0.88, 1.18)
Ethnicity	
Hispanic	0.85 (0.73, 0.98)
Non-Hispanic	REF
Educational debt (USD)	
<74,999	1.10 (0.92, 1.31)
75,000–249,999	1.01 (0.89, 1.14)
>250,000	1.29 (1.15, 1.45)
None	REF
Plan to provide continuity care after residency	
No	REF
Yes	0.77 (0.68, 0.86)
Fellowship intention	
No	0.92 (0.83, 1.02)
Unsure	1.16 (0.99, 1.34)
Yes	REF
Residency rural status	
Rural	1.03 (0.83, 1.28)
Nonrural	REF
Program status	
Ended 2019	0.68 (0.36, 1.28)
Ended 2020	1.33 (0.88, 2.01)
Started 2020	0.72 (0.53, 0.98)
Started 2021	1.01 (0.64, 1.60)
No change	REF
Program size	
<6	0.86 (0.76, 0.99)
6–10	REF
>10	1.08 (0.95, 1.24)

Note: Statistically significant results are bolded.

Our study design had limitations; inherent to any cross-sectional study is an inability to draw conclusions regarding causality. Similarly, this study, like much other burnout research, is limited in that it is an assessment of burnout only at one specific time. Moreover, attempts to compare the reported prevalence of burnout between demographic groups may be confounded by the ways participants are socialized to understand and describe their emotions. Given its inclusion of almost all graduating family medicine residents nationally, this study overcomes generalizability and reliability concerns associated with prior studies. The Initial Certification Questionnaire that is required when registering for the ABFM Certification Exam has been used extensively to understand training outcomes, career choice patterns, debt burden, and loan-forgiveness patterns. However, our sample excluded the small percentages of physicians who matriculated to family medicine residency but left their programs before exam registration (approximately 2%)⁵⁵ and graduates who did not take the ABFM Certification Exam (approximately 5%),⁵⁶ such as those applying exclusively for certification from the American Osteopathic Board of Family Physicians. Because of the small numbers of residents identifying their gender as unknown and their race as American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Other, we were unable to draw meaningful conclusions regarding these groups. Despite the risk of masking differences between these racial groups with low response rates, we attempted to increase the sample size by combining them as described earlier. However, the data for these groups are available in Supplemental Table 1.

More than one-third of family physicians preparing to graduate residency reported burnout, raising concerns about their wellness and preparedness to fill the gaps in an eroding primary care workforce. A resident's odds of burnout were not attributable to their program, indicating that the problem, as with the general physician workforce, is likely systemic. Such a widespread issue with urgent and far-reaching implications for our health system requires a macro-level solution, such as restructuring the standards used by the Accreditation Council of Graduate Medical Education to target drivers of burnout, expanding the role of the government agencies that fund residency programs to allow more nuanced enforcement of program standards, or increasing the influence of resident unions. Additionally, ABFM tracks these surveys and could use these findings to provide feedback to program directors about program outcomes to improve residency training. Resident characteristics that correlate with burnout in these data pose questions for future research that may further advocacy for burnout prevention.

PRESENTATIONS

Parts of this study were presented at the STFM Annual Spring Conference, May 2023, in Tampa, Florida.

FUNDING/SUPPORT

As a Visiting Scholar, Dr Doe's work was supported by the American Board of Family Medicine Foundation.

ACKNOWLEDGMENTS

The authors thank Deborah S. Clements, MD; Santina Wheat, MD, MPH; Emmeline Ha, MD; Jill Shuemaker, RN, CPHIMS; and Mikel Severson.

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