

ORIGINAL RESEARCH

Caregiving Responsibilities, Organizational Policy, and Burnout Among Primary Care Clinicians and Staff

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Background: Health care workers with responsibilities caring for dependent adults or children outside of work may be particularly vulnerable to burnout. We examined the relationship between gender, caregiving, and burnout among primary care clinicians and staff in the context of the COVID-19 pandemic.

Methods: Longitudinal cohort study using survey data collected in February 2020 and May 2021 from primary care clinicians and staff in a university-based health system. The association between gender, caregiving hours, and perceived workplace support for caregiving responsibilities on the outcome of emotional exhaustion was tested using linear models with fixed effects.

Results: The response rate for the survey was 76% for clinicians and 90% for staff in February 2020% and 70% for clinicians and 85% for staff in March 2021. Respondents included 336 clinicians and staff, with 77% identifying as female. Female clinicians reported greater emotional exhaustion than male clinicians in 2021. Female gender, more caregiving hours, and lower workplace support were associated with higher clinician burnout. In longitudinal analysis for clinicians, hours of caregiving but not work supportiveness was associated with an increase in emotional exhaustion from 2020 to 2021. For staff, supportiveness of the workplace for caregiving responsibilities, but not gender or caregiving hours, was associated with lower exhaustion in 2021 and was protective against increased exhaustion from 2020 to 2021.

Conclusions: Beyond the acute stressors of the COVID-19 pandemic, ensuring the sustainability of a health care workforce that shoulders caregiving responsibility requires policies and operational models that adequately support workers with high caregiving responsibilities and work supports that encourage workers to take full advantage of the accommodations for which they are eligible. (J Am Board Fam Med 2024;37:847–856.)

Keywords: Burnout, Caregivers, Emotional Exhaustion, Linear Models, Longitudinal Studies, Primary Health Care, Qualitative Research, Surveys and Questionnaires, Workforce

Introduction

Primary care physicians in the US have among the highest prevalence of burnout among physician specialties. The COVID-19 pandemic was 1 recent precipitating event that brought existing trends into

sharp relief, with 68% of family physicians and 69% of general internists reporting burnout in 2021.¹ Rates of burnout are also high among health workers in other professions.² In 2022, almost one-quarter of front-line nurses and clinicians reported plans to leave their position in the coming year.^{3,4}

Stressors may be amplified for health care workers who have caregiving responsibilities outside of their paid employment. One in 5 adults in the United States cares for an adult or child with a disability, and 3 in 10 adults care for a child under the age of 18, of whom 12% also care for an adult.^{5–7} Many employed individuals with caregiving responsibilities report stress from the tension between those 2 roles.⁵ Within health care, evidence of the impact of caregiving

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responsibilities on wellbeing has built in past years. For example, female physicians experience more competing demands from work and family than male colleagues,⁸ which is associated with exhaustion and depersonalization⁹ and may contribute to greater burnout among female physicians¹⁰ and trainees.^{11–13}

Little published research has examined the relationship between caregiving responsibilities, gender, and burnout, or the extent to which these relationships are influenced by a supportive work culture. Even less is known about the impact on work experience of caregiving during the COVID-19 pandemic. We used data from a longitudinal work experience survey of clinicians and staff in an urban primary care network to explore these issues. Our specific aims were to determine whether caregiving responsibilities outside of work are associated with burnout and, if so, whether a supportive work culture mitigates burnout experienced by people with greater caregiving responsibilities. An additional aim was to determine whether the extent of increase in emotional exhaustion in the first year of the pandemic differed for people with varying levels of caregiving responsibilities. Because prior research has often found that female workers have greater caregiving responsibilities and burnout, we tested for differences by gender in all our analyses.

Methods

We used data from work experience surveys of primary care staff and clinicians conducted in February 2020 and March 2021. The analyses included both cross-sectional analysis of data from respondents in 2021, and longitudinal analysis of data from individuals responding in both 2020 and 2021, allowing us to examine experiences just before and 1 year after the onset of COVID-19 in the US. The study protocol was approved by the University of California, San Francisco (UCSF) Institutional Review Board (11-08048).

Setting and Participants

The study population consisted of clinicians and staff working in 14 urban primary care clinics operated by a university health system, all operating within a city with a population of 815,000 in 49 square miles situated within a larger metroplex. These included 3 academic teaching practices with 10 or more residents. Clinicians working at these practices include 132 physicians, 83 resident

physicians, and 29 nurse practitioners responsible for a primary care patient panel. Staff included all other clinic personnel, including nursing and non-clinical staff. All clinicians and managers are salaried employees of the health system; clinical staff are hourly employees working in union-represented positions. We did not conduct power analysis or sample size calculations, as this sample was based on a convenience sample of all primary care clinics within the health system.

Measures

Survey measures were drawn from existing validated measures and measures developed by the research team in response to topics of interest to the health system. Both the 2020 and 2021 surveys included several items about work experience, including a single item measure of emotional exhaustion from the Maslach Burnout Inventory (MBI), used with permission.¹⁴ The item, which has been previously tested against the full MBI subscale for emotional exhaustion,¹⁴ states, “I feel burned out from my work,” with response options ranging from 0 (“Never”) to 6 (“Every day”). The survey also included items on gender identity (male, female, transgender male, transgender female, genderqueer/nonbinary, other, prefer not to say) and years at the worksite (Less than 1 year, 1 to 2 years, 3 to 5 years, 6 to 10 years, and more than 11 years).

The 2021 survey included 2 items on caregiver issues that were developed by the research team in response to priorities of primary care leadership. One item asked respondents to estimate the hours per week that they “spent on caregiving responsibilities for dependent children, elders, or persons with disability” (response options: 0, 1 to 5, 6 to 10, 11 to 20, 20+), a question adapted from the Behavioral Risk factor Surveillance System.¹⁵ We also developed a single-item measure of organizational support for caregiving responsibilities: “In the past year, I have felt supported by my workplace in balancing work and responsibilities outside of work” (response options: 1 [“Completely disagree”] to 10 [“Completely agree”]). Because the items were developed for internal, quality improvement purposes, validation studies were not conducted using these items, but the items had face validity for site administrative and medical directors and for front line staff who pilot tested the instrument and provided feedback.

Survey Administration

Surveys were administered via web-based survey software. Three reminders were provided to participants, and sites were updated on a weekly basis with their response rates so they could encourage staff and clinicians to respond. Participants in the survey were entered into a raffle for \$25 gift cards. Response rates were calculated as the number of complete responses divided by the total number of people who received the survey, all of whom were eligible.

Analysis

Analyses were conducted using Stata version 16 (College Station, TX). In bivariate analyses, we used χ^2 tests of independence and independent samples *t* test. For the cross-sectional analysis, we conducted stepwise linear regression with fixed effects and adjustment for clustering at the clinic level, using the “cluster” command in Stata, which adjusts for robust variances through the Huber/White/sandwich estimate of variance.^{16,17} We included gender, caregiving hours, and workplace supportiveness as the key independent variables and emotional exhaustion the outcome variable. Missing data were not imputed. We used case wise deletion, reflected in the *n*-values of the tables. Informed by our prior studies observing a difference in burnout patterns,^{18,19} we stratified analyses by clinicians versus staff. Based on patterns of response observed in bivariate analysis, we recoded the hours of caregiving to a dichotomous variable (10 or fewer hours of caregiving v. 11 or more hours) for the purpose of statistical modeling. Models controlled for years working at the clinic. For the cross-sectional analysis, Step 1 models included gender as the primary independent variable. In Step 2, we added the variables on caregiving hours and feeling supported by the workplace. We explored potential mediation of caregiving hours or support on the relationship between gender and emotional exhaustion using Sobel-Goodman tests and tested for moderation using interaction terms for gender and caregiving hours, gender and caregiving support, and caregiving hours and support. We retained in the clinician model (Step 2) the 1 interaction term with $P < .10$, which was for caregiving hours and support.

For the longitudinal analysis, we matched individual clinician and staff member’s responses across the 2 time points (February 2020 and May 2021) and calculated a change score between emotional

exhaustion scores (May 2021 score—February 2020 score). This was the dependent variable of the longitudinal models. As with the cross-sectional analysis, we controlled for years working at the clinic and baseline emotional exhaustion, as well as clustering at the clinic level. Independent variables included gender, caregiving hours, and perception of workplace support for caregiving.

For all models, we tested for multiple collinearities and examined R^2 and root mean square error as indicators of goodness of fit. Results were shared with research participants in a series of 2 report-back sessions encompassing more than 40 participants, in which we shared initial findings and interpretations and sought feedback.

Results

Response rate for the survey was 76% for clinicians and 90% for staff in February 2020 and 70% for clinicians and 85% for staff in March 2021. In 2021, there were a total of 336 respondents, including 177 primary care clinicians and 159 staff (Table 1). Of these 2021 respondents, 115/177 individual clinicians and 124/159 individual staff members could be matched with 2020 data. The majority of 2021 respondents (63% of clinicians and 69% of staff) were female, with 12% of clinicians and 18% of staff declining to share their gender. No respondents selected other gender categories.

Among clinicians in the cross-sectional 2021 analysis, 34% reported caregiving responsibilities of more than 10 hours per week, compared with 40% of staff. Female clinicians were more likely than male clinicians to report more than 20 hours of caregiving per week (29.7% female clinicians v. 14.0% male clinicians; OR 2.68, 95% CI: 1.03 to 6.94, data not shown). This difference was not significantly different for staff (30.9% female staff v. 15.0% male staff; OR 2.53, 95% CI: 0.70-9.23).

Mean ratings of the supportiveness of their workplace did not differ between clinicians (6.63 [SD 2.40]) and staff (7.18 [SD 2.65]; unadjusted $P = .083$). Clinicians reporting more than 10 hours of caregiving per week scored the supportiveness of their workplace lower than those with 10 or fewer caregiving hours (mean, 5.93 [SD 2.71] v. 7.04 [SD 2.14]; $P = .005$; data not shown). For staff, there was no significant difference in ratings of workplace supportiveness among respondents with more than 10 compared with 10 or fewer hours of caregiving

Table 1. Characteristics of Respondents to 2021 Survey, by Gender*

	Overall	Man	Woman	P-value [±]
Clinicians (n = 156)				
Number	156	44	112	
Years in health system, % (No.)				0.63
Less than a year	10.3% (16)	11.4% (5)	9.8% (11)	
1 to 2 years	24.4% (38)	25.0% (11)	24.1% (27)	
3 to 5 years	27.6% (43)	20.5% (9)	30.4% (34)	
6 to 10 years	10.9% (17)	9.1% (4)	11.6% (13)	
11 years or more	26.9% (42)	34.1% (15)	24.1% (27)	
Hours of caregiving, % (No.)				0.25
0 hours	39.4% (61)	50.0% (22)	35.1% (39)	
1 to 5 hours	20.7% (32)	20.5% (9)	20.7% (23)	
6 to 10 hours	7.7% (12)	6.8% (3)	8.1% (9)	
11 to 20 hours	7.1% (11)	9.1% (4)	6.3% (7)	
More than 20 hours	25.2% (39)	13.6% (6)	29.7% (33)	
Rating of workplace support for caregiving outside of work (1 to 10 scale), mean (SD)	6.63 (2.40)	7.20 (2.42)	6.42 (2.37)	0.08
Emotional exhaustion (0 to 6 scale), mean (SD)	3.32 (1.71)	2.74 (1.63)	3.54 (1.69)	0.009
Change in emotional exhaustion (2020 to 2021) ^b , mean (SD)	0.42 (1.52)	0.19 (1.38)	0.51 (1.57)	0.32
Staff (n = 130)				
Number	130	20	110	
Years in health system, % (no.)				0.35
Less than a year	3.3% (5)	10.0% (2)	2.8% (3)	
1 to 2 years	20.5% (31)	30.0% (6)	21.1% (23)	
3 to 5 years	28.5% (43)	20.0% (4)	28.4% (31)	
6 to 10 years	28.5% (43)	30.0% (6)	26.6% (29)	
11 years or more	19.2% (29)	10.0% (2)	21.1% (23)	
Hours of caregiving, % (no.)				0.11
0 hours	30.0% (39)	30.0% (6)	30.0% (33)	
1 to 5 hours	20.0% (26)	30.0% (6)	18.2% (20)	
6 to 10 hours	13.1% (17)	5.0% (1)	14.6% (16)	
11 to 20 hours	8.5% (11)	20.0% (4)	6.4% (7)	
More than 20 hours	28.5% (37)	15.0% (3)	30.9% (34)	
Rating of workplace support for caregiving outside of work (1 to 10 scale), mean (SD)	7.18 (2.65)	7.55 (2.21)	7.11 (2.72)	0.50
Emotional exhaustion (0 to 6 scale), mean (SD)	2.98 (1.78)	2.90 (1.74)	3.00 (1.80)	0.84
Change in emotional exhaustion (2020 to 2021) [‡] mean (SD)	0.19 (1.66)	-0.13 (0.83)	0.24 (1.75)	0.43

*Includes only individuals who marked “male” or female. No respondents selected other gender categories such as Transgender male, Transgender female, Genderqueer/non-binary, Other. Analyses excluded people who marked “prefer not to answer” (n = 24) or who left gender blank (n = 26).

[±]Pearson χ^2 or independent samples *t* test were used to examine differences by gender.

[‡]Change in exhaustion was calculated as the exhaustion score in 2021 minus the exhaustion score in 2020. A total of 111 clinicians (31 male and 80 female) and 108 staff (15 male and 93 female) responded to the survey both years.

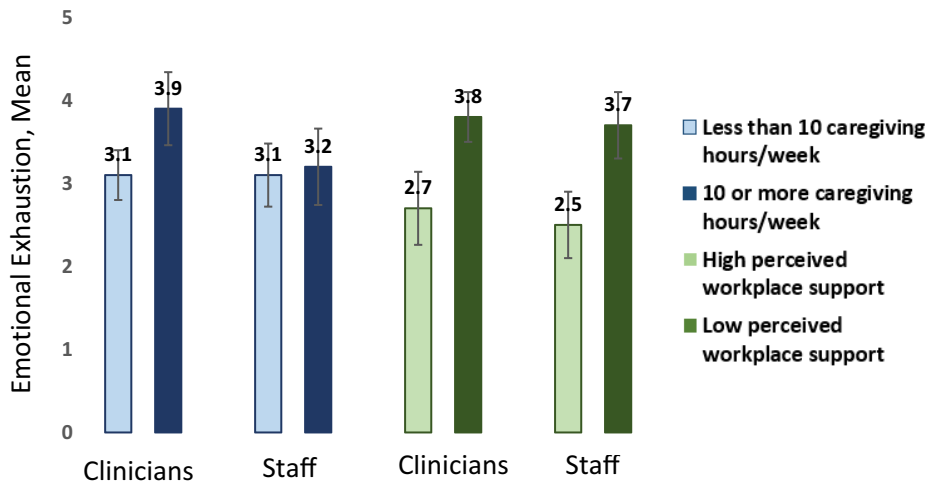
Abbreviation: SD, Standard deviation.

(7.33 [SD 2.69] v. 6.82 [SD 2.69]; *P* = .256) or by gender (7.55 [SD 2.21] for men v 7.11 [SD 2.72] for women, *P* = .495).

Clinicians with more than 10 hours of caregiving responsibilities reported significantly more emotional exhaustion than those with 10 or fewer hours (mean, 3.85 [SD 1.66] v. 3.09

[SD 1.63], *P* = .006; Figure 1), with a moderate effect size of 0.5. Hours of caregiving were not significantly associated with emotional exhaustion for staff. Perceived supportiveness of the work environment was significantly and negatively associated with emotional exhaustion for both clinicians and staff. When workplace support was treated as a

Figure 1. Mean exhaustion by hours of caregiving and perception of workplace support, for staff and clinicians (2021).



Note: Emotional exhaustion is a single item from Maslach Burnout Inventory with range of 0 (Never) to 6 (Every day). For perceptions of workplace support, respondents are categorized into dichotomous groups using the median split with “Low support” a score of 7 or less and “High support” a score of 8-10.

dichotomous variable based on a median split, both clinicians and staff with low work support for caregiving reported significantly higher emotional exhaustion than those with high workplace support (mean exhaustion 3.80 [SD 1.53] v. 2.68 [SD 1.74], $P < .001$ for clinicians; 3.73 [SD 1.72] v. 2.52 [SD 1.70], $P < .001$ for staff; Figure 1). This constitutes a moderate effect size of 0.67 for both clinicians and staff.

In regression models for the clinician sample controlling for years in the health system and clustering by site (Table 2), female clinicians were more likely than male clinicians to report emotional exhaustion ($\beta = 0.80$, 95% CI: 0.20-1.07). Spending 11 or more hours per week in caregiving outside of work was associated with greater exhaustion ($\beta = 1.05$, 95% CI: 0.21-1.89), while perceived supportiveness of the workplace had a

Table 2. Multivariate Models of Gender, Caregiving Hours, and Work Support as Predictors of Emotional Exhaustion Scores among Clinicians and Staff in 2021*

	β	95% CI	P-value
Clinicians (n = 150)			
Female gender (reference: male)	0.64	0.20–1.07	0.007
Caregiving hours (ref: 10 or fewer hours/wk)	1.05	0.21–1.89	0.018
Felt supported by workplace (per 1 unit)	–0.18	–0.33, –0.04	0.018
Interaction (Hours x perceived support)	–0.03	–0.06–0.004	0.076
Intercept	4.50	2.8–6.12	<0.001
Staff (n = 128)			
Female gender (reference: male)	–0.07	–1.52–1.38	0.92
Caregiving hours (ref: 10 or fewer hours/wk)	–0.11	–0.61–0.38	0.63
Felt supported by workplace (per 1 unit)	–0.26	–0.41, –0.12	0.002
Intercept	4.80	3.00–6.60	<0.001

*Models controlled for years working at the clinic and clustered by site. $F(5, 12) = 11.40, P < .001; R^2 = 0.22$. Staff model (Step 1: $F[2, 12] = 0.01, P = .99; R^2 < 0.001$; Step 2: $F[5, 12] = 4.85, P = .01; R^2 = 0.15$).

Abbreviation: CI, Class interval.

negative association with emotional exhaustion ($\beta = -0.18$ for each 1-point increase in the supportiveness scale, 95% CI: -0.33 - -0.04). p.9, caregiving hours nor caregiving support mediated the relationship between gender and emotional exhaustion. In regression models for the staff sample, only lower perceived supportiveness of the workplace, but not gender or hours of caregiving, was associated with greater emotional exhaustion ($\beta = -0.26$; 95% CI: -0.41 - -0.12 ; Table 2).

For the longitudinal analysis, when we calculated a change in exhaustion from February 2020 to May 2021, we found that clinicians with more than 10 hours of caregiving responsibilities each week as reported on the 2021 survey experienced a much greater increase in emotional exhaustion than clinicians with fewer caregiving hours; clinicians in the higher caregiving hour group had a mean increase of 1.1 points in emotional exhaustion in bivariate analysis, compared with an increase of 0.05 points for clinicians with fewer hours of caregiving responsibility (unadjusted $P < .001$; Figure 2). For staff, there was no difference in change in emotional exhaustion by hours of caregiving. For both clinicians and staff, there was no significant association between perception of workplace supportiveness in 2021 and the

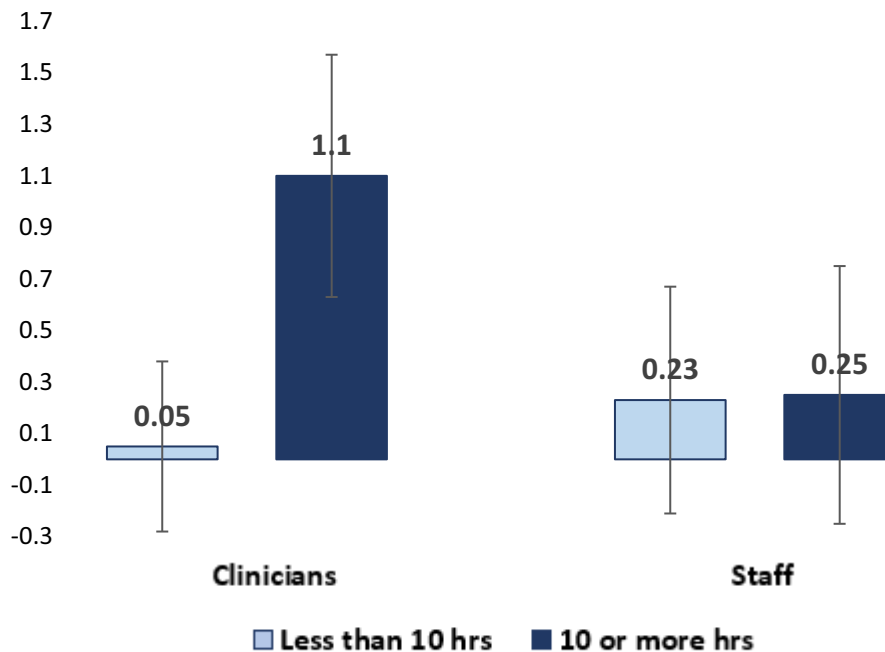
change in emotional exhaustion between 2020 and 2021 in bivariate analysis (mean change 0.52 v. 0.28 [unadjusted $P = 0.415$] for clinicians and 0.40 v. 0.13 [unadjusted $P = .360$] for staff, not shown).

In the regression model for the clinician longitudinal sample using gender, caregiving hours, and workplace support as independent variables, only caregiving responsibilities of more than 10 hours per week was significantly associated with increased emotional exhaustion ($\beta = 0.76$, 95% CI: 0.27 - 1.26) (Table 3). In contrast, in the regression model for staff, workplace support was the only significant predictor, with an increase of 1 point on the supportiveness score associated with a decrease of -0.17 on the exhaustion scale (95% CI: -0.26 , -0.07). Both clinician and staff models explained a moderate amount of the variation in changes in burnout (R^2 0.35 for clinicians and 0.31 for staff).

Discussion

In this study of primary care clinicians and staff in 1 urban health system a year into the COVID-19 pandemic, we found that female primary care clinicians and clinicians with more than 10 hours of caregiving responsibilities each week outside of work

Figure 2. Change in exhaustion (February 2020–May 2021) by hours of caregiving, for clinicians and staff.



Note: Change score calculated as 2021 score – 2020 score. Scale for Burnout 0 = Never to 6 = Every day.

Table 3. Multivariate Models of Gender, Caregiving Hours, and Work Support as Predictors of Change in Emotional Exhaustion Scores among Clinicians and Staff (2020–2021)

	β	95% CI	P-value
Clinicians (n = 106)			
Female (reference: male)	0.23	−0.13–0.59	0.20
Caregiving hours (ref: 10 or fewer hours/wk)	0.76	0.27–1.26	0.006
Felt supported by workplace (per 1 unit)	−0.14	−0.29–0.00	0.050
Intercept	2.85	0.51–5.20	0.021
Staff (n = 106)			
Female (reference: male)	0.24	−0.62, −0.32	0.617
Caregiving hours (ref: 10 or fewer hours/wk)	−0.06	−0.48–0.36	0.753
Felt supported by workplace (per 1 unit)	−0.17	−0.26, −0.07	0.002
Intercept	2.82	1.27–4.36	0.002

*Models controlled for years working at the clinic and baseline values of emotional exhaustion, as well as clustering by site. Clinician model: $F(5,11) = 120.92, P < .001; R^2 = 0.348$. Staff model: $F(5,12) = 11.66, P < .001. R^2 = 0.313$.

Abbreviation: CI, Class interval.

were at greater risk than other clinicians for emotional exhaustion, one of the hallmarks of burnout. Perception of a work environment supportive of caregiver responsibilities mitigated burnout. Clinicians with more than 10 hours of caregiving per week had a much greater increase in emotional exhaustion from 2020 to 2021 during the first year of the COVID-19 pandemic than their counterparts with fewer caregiving hours. In contrast, for primary care staff, perceived workplace support - but not hours of caregiving - was associated with emotional exhaustion in 2021 and with an increase in exhaustion from 2020 to 2021. For clinicians, the effect size of caregiving hours in regression models for the cross-sectional and longitudinal associations with burnout was 0.5–0.6 of a standard deviation, constituting a moderate effect size.

Burnout threatens the well-being of the health care workforce and has been linked both to turnover^{19,20} and worse patient experience.^{21–23} This study was conducted in the context of the COVID-19 pandemic, which resulted in new stressors for health care personnel, including increased work hours, concerns for personal safety, and mistreatment by people who objected to masking or vaccines.⁴ Caregivers experienced well-documented additional stressors during this period, including extended periods of school closures and disruptions in care support systems.²⁴ Heightened turnover of health care personnel during the pandemic has increased the urgency of addressing root causes such as burnout; 1 group at greater risk of turnover are health care workers with caregiving responsibilities beyond work.²⁵

In primary care, one national study found nearly doubled rates of burnout among clinicians between 2020 and 2021.²⁶ Our study builds on these findings by demonstrating how caregiving responsibilities and a supportive work culture may have aggravating or protective effects, respectively, on burnout in primary care. Our study is the first to use a longitudinal sample to study changes in burnout in primary care during the pandemic and to demonstrate that clinicians with a high level of caregiving responsibilities were at particular risk for increased emotional exhaustion during this time.

In our study, hours of caregiving responsibilities were associated with emotional exhaustion for clinicians but not for staff. One theory that resonated with clinicians and staff during report-back sessions was that this may result from clinicians' experience that their work accumulates when they are absent rather than being covered by other people; this backlog of work during days of leave serves as a disincentive to use existing allotments of leave and creates greater tension between responsibilities at and outside of work that may occur to a greater degree among clinicians than among staff. Thus, a culture of support for taking time off may be less meaningful to clinicians than the pure volume of work awaiting them as they move between home and work. There could also be other reasons for greater impacts of caregiving hours on clinicians, such as increasing volume of asynchronous work or greater exposure to vicarious trauma. The prevalence of a culture within medicine that stigmatizes individuals using leave policies as "not dedicated enough" is well

documented and results in underuse of existing policies.²⁷ Even in settings with a supportive organizational culture, inadequate coverage of clinician tasks during leave such as responding to patient portal inbox messages may diminish the benefits of supportive policies and culture. Thus, in addition to promoting family friendly policies such as paid time off and family medical leave, flexible hours and the ability to work remotely, and supports for dependent care,⁵ it may be important that health systems examine the pure volume of work and establish backup systems to ensure that there is coverage for clinicians during periods of leave, so that they can effectively unplug.

Our study adds to the literature on gender-based differences in job responsibilities, caregiving responsibilities, and resulting stressors, particularly for clinicians.^{28–30} Female clinicians with caregiving responsibilities have less support for caregiving than male colleagues. A study of awardees of NIH early career awards for clinical faculty found that women were twice as likely as men to be in dual career households; women spent 12 more hours per week on child care and domestic responsibilities than their male colleagues with children and bore a greater proportion of childcare interruptions.³¹ Female surgeons are likewise more likely to be in dual career relationships, less likely to be able to depend on a partner for childcare disruptions, and more likely to report that child rearing slowed their career advancement;⁹ they also reported higher emotional exhaustion and rated their workplace as less supportive of caregiving responsibilities than did male counterparts.^{9,32} Our study did not find a mediating relationship for caregiving hours or support between the association of gender and exhaustion, although each was associated with the outcome of burnout. This suggests that, while ample literature documents that women shoulder more responsibility for informal caregiving,³³ there was an independent effect of gender on burnout for primary care clinicians in this study. This may be explained by studies demonstrating that female clinicians receive more requests from patients and staff, spend more time on electronic in-basket work, and provide more preventive care for their patients than do male physicians.^{28–30} We did not observe gender differences for staff; however, this lack of difference should be interpreted with caution due to the limited number of male staff.

Our study has several limitations. It did not distinguish between different types of caregiving responsibilities, such as caring for an infant or for someone with a long-term disability. Previous research has linked responsibilities for long-term care with mood or anxiety disorders and burnout.³⁴ Our global measure of organizational support for caregivers did not distinguish between policies and organizational culture. Measures of organizational support and caregiving hours were single-item measures designed for quality improvement use and were not externally validated. Relationships found in this relatively small sample were significant, but these relationships should be examined in larger studies. Moreover, qualitative research could help to elucidate what constitutes meaningful “workplace supportiveness” for health care workers. Although the response rates to our survey were relatively high, there remains a potential for response bias in our results. Our study was conducted in a single academic health system in an urban area, and results may not be generalizable to other settings with different work culture or policies.

In summary, our study documented that primary care clinicians in an urban health system with high caregiving responsibilities reported greater emotional exhaustion than colleagues with lower responsibilities, and that the first year of the COVID-19 pandemic exacerbated the association of caregiving responsibilities with burnout. An organizational culture supportive of caregiving responsibilities was associated with less emotional exhaustion for both clinicians and staff, though it did not fully mitigate the impact of the pandemic on caregivers’ burnout. While the COVID-19 pandemic provided a precipitating event, the stressors it exacerbated were not unique to that time period, and burnout remains high among health care workers.³⁵ The pandemic exposed the frailty of the US caregiver support system, which in the higher gendered structures of the US disproportionately affects women. With a rapidly aging population in the United States,³⁶ the need to support health care workers with caregiving responsibilities is even more urgent. Ensuring the sustainability of a health care workforce that shoulders responsibility outside of work for the care of dependent children and adults requires policies and operational models that adequately support workers with high caregiving responsibilities and a work culture that encourages workers

to take full advantage of the accommodations for which they are eligible.

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References

- Shanafelt TD, West CP, Dyrbye LN, Trockel M, Tutty M, Wang H, et al. Changes in burnout and satisfaction with work-life integration in physicians during the first 2 years of the COVID-19 pandemic. *Mayo Clinic Proceedings*; 2022: Elsevier.
- Grumbach K, Knox M, Huang B, Hammer H, Kivlahan C, Willard-Grace R. A longitudinal study of trends in burnout during primary care transformation. *Ann Fam Med* 2019;17:S9–S16.
- The Green Center. Quick COVID-19 primary care survey: Series 35 The Larry A. Green Center; 2022.
- Office of the Assistant Secretary for Planning and Evaluation. Impact of the COVID-19 pandemic on the hospital and outpatient clinician workforce. Washington, DC: US Department of Health and Human Services. ASPE. 2022.
- Roman C, Bane S, Opthof E. *How Employers and States Can Support the Essential Workforce of Family Caregivers*. Sage: Los Angeles, CA; 2021. p. 1045–7.
- More than one-in-ten U.S. parents are also caring for an adult [press release]. 29 November 2018. PEW Research Center; Washington, DC.
- Caregiving AFCaNAo. Caregiving in the U.S.: 2020 report.
- Guille C, Frank E, Zhao Z, et al. Work-family conflict and the sex difference in depression among training physicians. *JAMA Intern Med* 2017;177:1766–72.
- 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;146:211–7.
- Templeton K, Bernstein CA, Sukhera J, et al. Gender-based differences in burnout: issues faced by women physicians. *NAM perspectives* 2019.
- Baptiste D, Fecher AM, Dolejs SC, et al. Gender differences in academic surgery, work-life balance, and satisfaction. *J Surg Res* 2017;218:99–107.
- Riska E. Gender and medical careers. *Maturitas* 2011; 68:264–7.
- Strong EA, De Castro R, Sambuco D, et al. Work-life balance in academic medicine: narratives of physician-researchers and their mentors. *J Gen Intern Med* 2013;28:1596–603.
- 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;24:1318–21.
- Behavioral Risk Factor Surveillance System 2020 Questionnaire. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2020.
- Rogers W. Regression standard errors in clustered samples. *Stata technical bulletin* 1994;3.
- Williams RL. A note on robust variance estimation for cluster-correlated data. *Biometrics* 2000;56:645–6.
- Willard-Grace R, Hessler D, Rogers E, Dubé K, Bodenheimer T, Grumbach K. Team structure and culture are associated with lower burnout in primary care. *J Am Board Fam Med* 2014;27:229–38.
- Willard-Grace R, Knox M, Huang B, Hammer H, Kivlahan C, Grumbach K. Burnout and health care workforce turnover. *Ann Fam Med* 2019;17:36–41.
- 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;18:851–8.
- Willard-Grace R, Knox M, Huang B, Hammer H, Kivlahan C, Grumbach K. Primary care clinician burnout and engagement association with clinical quality and patient experience. *J Am Board Fam Med* 2021;34:542–52.
- Vahey DC, Aiken LH, Sloane DM, Clarke SP, Vargas D. Nurse burnout and patient satisfaction. *Med Care* 2004;42:II57–II66.
- Garman AN, Corrigan PW, Morris S. Staff burnout and patient satisfaction: evidence of relationships at the care unit level. *J Occup Health Psychol* 2002;7:235–41.
- Sappenfield OR, Leong A, Lebrun-Harris LA. Prevalence, sociodemographic and household characteristics, and impacts of disrupted child care due to the COVID-19 pandemic in the US, April-July 2021. *Child Youth Serv Rev* 2023;149:106859.
- Frogner BK, Dill JS, eds. Tracking turnover among health care workers during the COVID-19 pandemic: a cross-sectional study. *JAMA health forum*; 2022: American Medical Association.
- Sullivan EE, Etz RS, Gonzalez MM, et al. Primary care in peril: how clinicians view the problems and solutions. *N Engl J Med Catalyst Innovations in Care Delivery* 2023;4:23–0029. CAT.
- Fassiotto M, Simard C, Sandborg C, Valentine H, Raymond J. An integrated career coaching and time-banking system promoting flexibility, wellness, and success: a pilot program at Stanford University School of Medicine. *Acad Med* 2018;93:881–7.

28. Dahrouge S, Seale E, Hogg W, et al. A comprehensive assessment of family physician gender and quality of care: a cross-sectional analysis in Ontario, Canada. *Med Care* 2016;54:277–86.
29. Rotenstein LS, Fong AS, Jeffery MM, et al. Gender differences in time spent on documentation and the electronic health record in a large ambulatory network. *JAMA Netw Open* 2022;5:e223935-e.
30. Rule A, Shafer CM, Micek MA, Baltus JJ, Sinsky CA, Arndt BG. Gender differences in primary care physicians' electronic health record use over time: an observational study. *J Gen Intern Med* 2023;38:1570–2.
31. Jolly S, Griffith KA, DeCastro R, Stewart A, Ubel P, Jagsi R. Gender differences in time spent on parenting and domestic responsibilities by high-achieving young physician-researchers. *Ann Intern Med* 2014;160:344–53.
32. Spataro BM, Tilstra SA, Rubio DM, McNeil MA. The toxicity of self-blame: sex differences in burnout and coping in internal medicine trainees. *J Womens Health (Larchmt)* 2016;25:1147–52.
33. Sharma N, Chakrabarti S, Grover S. Gender differences in caregiving among family-caregivers of people with mental illnesses. *World J Psychiatry* 2016;6:7–17.
34. Yank V, Rennels C, Linos E, Choo EK, Jagsi R, Mangurian C. Behavioral health and burnout among physician mothers who care for a person with a serious health problem, long-term illness, or disability. *JAMA Intern Med* 2019;179:571–4.
35. Burrowes SAB, Casey SM, Pierre-Joseph N, et al. COVID-19 pandemic impacts on mental health, burnout, and longevity in the workplace among healthcare workers: a mixed methods study. *J Interprof Educ Pract* 2023;32:100661.
36. Eifert EK, Adams R, Morrison S, Strack R. Emerging trends in family caregiving using the life course perspective: Preparing health educators for an aging society. *Am J Health Educ* 2016;47:176–97.