Patient Enrollment Growth and Burnout in Primary Care at the Veterans Health Administration

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BACKGROUND: Patient enrollment levels at Veterans Health Administration (VHA) facilities change based on Veteran demand for care, potentially affecting demands on staff. Effects on burnout in the primary care workforce associated with increases or decreases in enrollment are unknown.

OBJECTIVE: Estimate associations between patient enrollment and burnout.

DESIGN: In this serial cross-sectional study, VHA patient enrollment and workforce data from 2014 to 2018 were linked to burnout estimates for 138 VHA facilities. The VHA's annual All Employee Survey provided burnout estimates.

PARTICIPANTS: A total of 82,421 responses to the 2014–2018 All Employee Surveys by primary care providers (PCPs), including physicians, nurse practitioners, and physician assistants; nurses; clinical associates; and administrative clerks were included. Respondents identified as patient-aligned care team members.

MAIN MEASURES: Independent variables were (1) the ratio of enrollment to PCPs at VHA facilities and (2) the year-over-year change in enrollment per PCP. Burnout was measured as the annual proportion of staff at VHA facilities who reported emotional exhaustion and/or depersonalization. Each primary care role was analyzed independently.

KEY RESULTS: Overall enrollment decreased from 1553 enrollees per PCP in 2014 to 1442 enrollees per PCP in 2018 across VHA facilities. Forty-three facilities experienced increased enrollment (mean of 1524 enrollees/PCP in 2014 to 1668 in 2018) and 95 facilities experienced decreased enrollment (mean of 1566 enrollees/PCP in 2014 to 1339 in 2018). Burnout decreased for all primary care roles. PCP burnout was highest, decreasing from a facility-level mean of 51.7% in 2014 to 43.8% in 2018. Enrollment was not significantly associated with burnout for any role except nurses, for whom a 1% year-over-year increase in enrollment was associated with a 0.2 percentage point increase in burnout (95% CI: 0.1 to 0.3).

CONCLUSIONS: Studies assessing changes in organizational-level predictors are rare in burnout research. Patient enrollment predicted burnout only among nurses in primary care.

KEY WORDS: burnout; healthcare; primary care; patient panel; workload.

J Gen Intern Med 38(7):1689–96
DOI: 10.1007/s11606-023-08034-5

Received June 23, 2022
Accepted December 30, 2022
Published online January 25, 2023

INTRODUCTION

Burnout among health care workers is a pervasive occupational problem that has adverse consequences for workers and health systems. Health care faces some of the highest levels of burnout of any industry in the United States (U.S.).[1] Fifty percent of primary care physicians and one-third of nurses working in direct patient care experience burnout symptoms.[2–4] Commonly characterized as a response to stressors at work,[5,6] burnout affects mental and physical health, reduces job satisfaction, and is associated with turnover intentions among health care workers.[7–11] For healthcare organizations, burnout threatens the stability of the workforce, and hiring and training new staff can be both costly and challenging in the face of healthcare worker shortages.[12,13] Additionally, provider turnover may impair patient access to care.[14] Patient safety and quality of care may be adversely associated with burnout among health care personnel.[15–18]

Burnout is thought to result, in part, from excessive workloads. Studies have found that workload is associated with burnout among clinicians[19–22] and nurses.[17] In particular, high intensity work,[11] greater burden of computer-based clerical tasks,[10] high perceived workloads,[19,20] understaffing,[17,21] and excessive panel sizes, i.e., the number of patients under a provider's care,[21] were associated with healthcare burnout. Though evidence suggests that individual autonomy and control over workload may mitigate burnout,[2,19] some aspects of workload associated with burnout are governed by organizational capacity and policies. The effort required to do one's job defines workload; yet, identifying single, direct measures of workload is challenging in burnout research.

One potential determinant of workload for health care personnel is patient enrollment, or the number of patients enrolled in care that a health system is responsible for providing care to.[23] The Veterans Health Administration (VHA) is one of the largest integrated health systems in the U.S. and uses its patient enrollment information, or the number of Veterans registered for care at a VHA facility, to make projections on patient access, utilization, and cost.[24] At the organizational-level, patient enrollment may act as a metric of health system demand. Primary care provides preventive care and serves as a frontline to other services in the VHA. Every patient who enrolls in VHA care is assigned to a healthcare team. While some Veterans may not be active users, the VHA (and the team they are assigned to) is still responsible for providing care if and when Veterans decide to receive it. Overall demand for care at a facility may affect patient-related workload for its staff.[23]

In this study, we focused on the primary care sector, and VHA patient enrollment served as an indicator of overall workload distributed across the VHA's primary care teams. Veteran enrollment in care at local VHA facilities varies substantially nationwide, and with it, the ratio of Veteran enrollees to healthcare staff at each facility. While Veteran demand for VHA services is increasing overall, some VHA medical facilities are losing enrollment as others grow rapidly.[25] Evaluating the effect of changes in patient enrollment at the organizational level, such as when enrollment in the health system care grows, has operational meaningfulness and may help health systems like the VHA anticipate effects on burnout in their workforce. In burnout research, the lack of longitudinal studies limits determination of causal relationships between predictors and burnout, particularly at the organizational level. Also, the effects of large-scale organizational changes in workload on burnout—as opposed to individual or team level changes—are largely unknown.[26] In this study, we used serial cross-sectional measures of organizational change in patient enrollment to test associations between variation in patient enrollment volume across the VHA and burnout among primary care staff.

METHODS

Study Design and Data Sources

For this study, data on Veteran patient enrollment for 138 VHA facilities nationwide were linked with estimates of burnout among primary care staff at each facility from 2014 to 2018.[20,27] Each VHA facility constitutes a regional network of one or more medical centers and community-based outpatient clinics. Patient enrollment and primary care staffing levels for each VHA facility were derived from the VHA's Support Service Center Capital Assets database. These estimates were available for late September, the close of the VHA's fiscal year, during each year of the study period. As a secondary analysis, facility-level mean patient panel size was substituted for enrollment as the primary predictor. Panel size was derived from the VHA's Patient Centered Management Module (PCMM), an application which computes individual provider panel sizes.

Facility-level estimates of burnout were derived from the VHA's All Employee Survey (AES), a workforce survey offered to VHA employees each spring. The AES assesses workplace climate, employee attitudes, and occupational outcomes, such as burnout.[28] Overall response rate for the AES among VHA employees was 56% in 2014, 60% in 2015, 57% in 2016, 60% in 2017, and 62% in 2018.[29–31] In 2018, 210,057 employees responded to the AES.[31] Individual survey responses and respondent characteristics were averaged to provide estimates for each facility's burnout levels and workforce characteristics for each year of the study, i.e., facility-year estimates. To create the serial cross-sectional data set, facility-year survey measures were linked with facility-level enrollment and staffing data by facility identifier.

Study Population

Within the VHA's patient-centered medical home model, primary care clinical staff are organized into four-person teams known as patient-aligned care teams, or PACTs.[32] There may be dozens to hundreds of PACTs at a VHA facility (depending on facility size and complexity), and every VHA patient is assigned to a PACT for their primary care. Our study population included AES respondents who indicated being part of a PACT and being in one of four key primary care roles: (1) primary care provider (PCP) (physician, nurse practitioner [NP], or physician assistant [PA]), (2) registered nurse (RN), (3) clinical associate (licensed practical nurse, nursing assistant, intermediate care technician, or health technician), and (4) administrative clerk. Occupation and PACT membership were provided by the survey respondent. The final sample included responses from 82,421 survey respondents aggregated into facility-level means or proportions by primary care role for each survey year. There were 2760 facility-year observations included in this study. To comply with data use requirements, a minimum of 10 respondents were required for each aggregate measure, resulting in the exclusion of 8.8% of facility-year observations.

Measures

Veterans discharged from military service for any reason other than dishonorable may actively enroll in VHA health care if they meet income and disability criteria.[33] For this study, VHA enrollment was measured as the ratio of enrolled patients at a VHA facility to the number of full-time equivalent (FTE) PCPs at that facility each year (i.e., enrollees/PCP). For the secondary analysis, panel size was calculated as the mean number of patients assigned to a panel divided by PCP FTE at each VHA facility. NP and PA panel sizes are three-fourths that of physicians at VHA, so for both the enrollment and panel size predictors, NP and PA FTE were weighted compared to physicians to reflect reduced panel sizes when totaling PCP FTE at a facility. Though VHA enrollees may receive care anywhere in the VHA, they generally receive

primary care from an assigned primary care team at their preferred VHA facility. Not all enrollees use VHA care in a year, or they may use specific VHA services (e.g., pharmacy) without using primary care services. We used enrollment to approximate the potential workload of VHA primary care staff. Facility-level enrollment counts were extracted for enrollees' preferred facilities—as opposed to closest facility—to approximate the clinical workload for primary care teams based on where patients were most likely to receive care. Two predictors based on enrollment ratios were used in this study: (1) the absolute enrollment measure (facility-level enrollees/PCP); and (2) the enrollment change measure (calculated as the percentage change in enrollees/PCP since the previous year at a facility). Panel size was similarly calculated as absolute (facility-level mean patients per panel) and relative (percentage change in panel size since the previous year at a facility) measures.

The primary outcome in this study was the prevalence of burnout for each primary care role. The AES utilizes three questions to characterize common dimensions of burnout modeled after the Maslach Burnout Inventory (MBI):[34,35] (1) emotional exhaustion, (2) depersonalization, and (3) reduced achievement.[36] Survey respondents answered these questions using a 7-point Likert scale of the frequency of burnout symptoms, ranging from never to every day. To align with previous evidence in the literature, we constructed a composite measure of burnout by combining the two questions on emotional exhaustion ("I feel burned out from my work") and depersonalization ("I worry that this job is hardening me emotionally") to identify respondents reporting burnout.[20,27,37] Previous research promotes use of these two items in reliably assessing burnout in comparison with the MBI, which is the gold standard of validated burnout assessment tools.[37] Respondents screened affirmatively for burnout when they answered weekly or more often to the emotional exhaustion and/or the depersonalization questions.[35,37] Burnout was calculated as the proportion of survey respondents reporting burnout within each primary care role at a facility.

Facility-level demographic characteristics were calculated for primary care role, including gender (proportion of respondents who were female), age (proportion of respondents who were less than 50 years old), and short tenure (proportion of respondents who worked at the VHA for less than 5 years). Levels of support staff were defined as the ratio of clinical and administrative support staff per FTE PCP (i.e., support staff/PCP). The VHA target ratio is three support staff/PCP. Indicators for each calendar year (2014–2018) were included to assess time trends.

Statistical Analyses

Descriptive statistics were estimated for VHA facilities for each year in the study. We used fixed effects linear regression models to estimate facility-level associations between enrollment and burnout for each PACT role. These models accounted for the multi-year structure of the data and controlled for bias due to time-invariant confounding by estimating within-facility effects of enrollment on burnout. For the absolute enrollment effect, base unadjusted models (model group 1) and adjusted models (model group 2) estimated the effect of a change of 100 enrollees per FTE PCP on burnout for each role. We also analyzed the relative measure of change in enrollment to test the effect of magnitude of change from one year to the next, regardless of absolute enrollment levels. For the relative enrollment effect, base unadjusted models (model group 3) and adjusted models (model group 4) estimated the effect of a 1% year-over-year change in the number of enrollees/PCP on burnout for each role. Adjusted models included gender, age, and tenure for the PACT role analyzed; year indicators; and the support staff ratio at the facility. For the secondary analyses, panel size replaced enrollment as the predictor for unadjusted and adjusted models of absolute panel size and relative panel size for each PACT role. All models utilized cluster robust standard errors. This study was approved by the VA Puget Sound Health Care System and University of Washington Institutional Review Boards. All analyses were performed using Stata software (version 16.1).[38]

RESULTS

Table 1 reports facility characteristics for the 138 VHA facilities included in this study. Response to the AES increased from 14,795 primary care respondents in 2014 to 18,541 respondents in 2018. Based on survey response, primary care staff was predominantly female in all roles. The populations of PCPs and nurses were older than those of clinical associates and administrative clerks, and the proportion of clinical associates and administrative clerks with short VHA tenure (less than 5 years) was greater than for PCPs and nurses. The ratio of support staff for PCPs increased from 2.5 support staff/PCP in 2014 to 3.1 support staff/PCP in 2018.

While mean Veteran enrollment was approximately 65,000 enrollees per VHA facility from 2014 to 2018, the mean enrollment ratio at VHA facilities decreased from a mean of 1553 enrollees/PCP in 2014 to 1442 in 2018. Forty-three facilities experienced increased enrollment (mean of 1524 enrollees/PCP in 2014 to 1668 in 2018), and 95 facilities experienced decreased enrollment (mean of 1566 enrollees/PCP in 2014 to 1339 in 2018). Median year-over-year change in enrollees/PCP decreased over the study period. Median enrollees/PCP decreased 0.46% in 2015 compared to 2014 (inter-quartile range (IQR): −4.91 to 4.27%) and decreased 2.58% in 2018 compared to 2017 (IQR: −6.42 to 2.58) (Table 1).

The prevalence of burnout for all PACT roles increased in the first two years of the study then began to decline after 2016 (Fig. 1). This equated to an overall decrease throughout the study period. From 2014 to 2018, mean burnout at VHA facilities decreased from 51.7 to 43.8% among PCPs, from 37.4 to

Table 1 Characteristics of VHA Facilities from 2014–2018 (*n*=138)

	Year				
	2014	**2015**	**2016**	**2017**	**2018**
AES* respondents					
Total primary care respondents	14,795	16,938	15,355	16,792	18,541
Primary care provider (PCP), *n* (%)	2701 (18)	3035 (18)	2876 (19)	3345 (20)	3583 (19)
Nurse, *n* (%)	5021 (34)	5352 (32)	5096 (33)	5291 (32)	5714 (31)
Clinical associate, *n* (%)	4181 (28)	4533 (27)	4285 (28)	4450 (27)	4943 (27)
Administrative clerk, *n* (%)	2892 (20)	4018 (24)	3098 (20)	3616 (22)	4301 (23)
Proportion of AES respondents at a facility who were female, mean (SD)					
PCP	0.55 (0.12)	0.54 (0.13)	0.54 (0.13)	0.54 (0.12)	0.56 (0.11)
Nurse	0.84 (0.07)	0.81 (0.08)	0.80 (0.08)	0.81(0.13)	0.81 (0.08)
Clinical associate	0.80 (0.10)	0.78 (0.09)	0.77 (0.10)	0.79 (0.11)	0.81 (0.10)
Administrative clerk	0.65 (0.14)	0.62 (0.15)	0.69 (0.16)	0.70 (0.13)	0.72 (0.12)
Proportion of AES respondents at a facility aged <50 years, mean (SD)					
PCP	0.41 (0.14)	0.4 (0.14)	0.39 (0.13)	0.38 (0.14)	0.41 (0.15)
Nurse	0.46 (0.12)	0.48 (0.11)	0.48 (0.13)	0.49 (0.11)	0.49 (0.12)
Clinical associate	0.5 (0.11)	0.52 (0.12)	0.52 (0.11)	0.52 (0.11)	0.52 (0.13)
Administrative clerk	0.57 (0.14)	0.55 (0.12)	0.59 (0.13)	0.59 (0.13)	0.6 (0.13)
Proportion of AES respondents at a facility with short tenure (<5 years), mean (SD)					
PCP	0.37 (0.15)	0.40 (0.15)	0.43 (0.15)	0.45 (0.16)	0.44 (0.15)
Nurse	0.42 (0.14)	0.43 (0.14)	0.49 (0.16)	0.43 (0.14)	0.43 (0.12)
Clinical associate	0.49 (0.15)	0.49 (0.15)	0.57 (0.17)	0.46 (0.13)	0.46 (0.14)
Administrative clerk	0.52 (0.14)	0.54 (0.16)	0.45 (0.16)	0.57 (0.15)	0.58 (0.14)
Facility characteristics					
Support staff/PCP, mean (SD)	2.5 (1.0)	2.9 (1.1)	2.9 (1.1)	3.0 (1.6)	3.1 (1.5)
Facility-level Veteran enrollees, mean (SD)	65,082 (34,625)	64,212 (34,686)	64,811 (35,605)	65,380 (36,445)	65,744 (37,264)
Facility-level Veteran enrollees/PCP, mean (SD)	1553 (384)	1545 (386)	1490 (384)	1479 (393)	1442 (400)
Percentage change in enrollees/PCP since previous year, median (IQR)	–	−0.46 (−4.91, 4.27)	−3.99 (−7.68, 0.84)	−0.76 (−5.06, 3.59)	−2.58 (−6.42, 2.58)

**AES All Employee Survey*

33.9% among nurses, from 32.0 to 29.4% among clinical associates, and from 41.5 to 36.3% among administrative clerks.

Unadjusted Results

In unadjusted models of the association between enrollment/PCP and burnout, enrollment was significantly associated with burnout among PCPs and administrative clerks (model group 1, Table 2). The proportion of employees reporting burnout at VHA facilities increased by 1.4 percentage points (pp) for PCPs (95% CI: 0.4 to 2.4) and by 1.1 pp for administrative clerks (95% CI: 0.2 to 1.9) for every 100 additional enrollees/PCP at a VHA facility. For example, based on mean burnout in 2014 from the unadjusted models (see Appendix Table A1), adding 100 enrollees/PCP at a facility would predict an increase in burnout from 29.7 to 31.1% for PCPs and from 24.8 to 25.9% for administrative clerks. Level of enrollment/PCP was not significantly associated with burnout for nurses or clinical associates in unadjusted models.

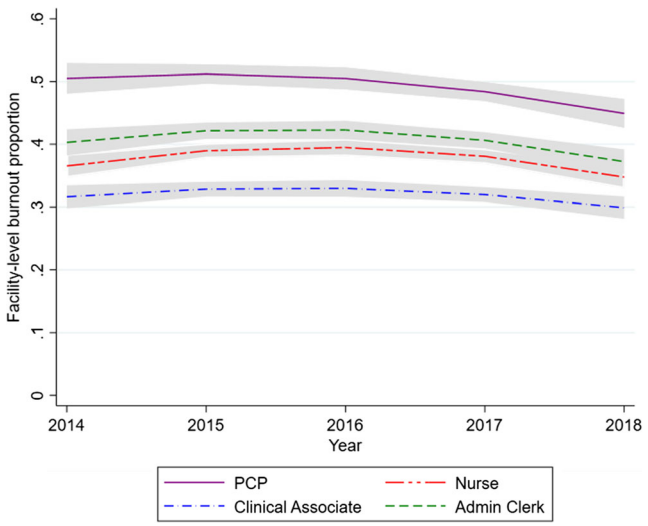

Figure 1 Trends in burnout for VHA facilities from 2014 to 2018. Trend lines estimate the mean proportion of employees at VHA facilities who report burnout by year and primary care role with 95 CIs. PCP, primary care provider.

In unadjusted models of the change in enrollment, burnout among nurses was significantly associated with a year-over-year change in enrollment/PCP (model group 3, Table 3). Burnout increased by 0.2 pp among nurses (95% CI: 0.1 to 0.3) for every 1% change in enrollees/PCP since the previous year. For example, based on unadjusted mean burnout in 2015 (see Appendix Table A2), a 1% increase in patient enrollment from 2014 to 2015 at a facility would predict an increase in burnout from 38.0 to 38.2% for nurses. In this case, a 1% increase in enrollment would have equated to an additional 15 enrollees/PCP from 2014 to 2015 for a facility at the median enrollment level. The year-over-year change in enrollment/PCP was not significantly associated with burnout for the other primary care roles in unadjusted models.

Table 2 Percentage Point (pp) Change in Facility-Level Burnout Associated with an Increase of 100 Veteran Enrollees/PCP*

Primary care role	Model Group 1: Unadjusted pp change in burnout (95% CI)	Model Group 2: Adjusted pp change in burnout (95% CI)†
PCP	1.4 (0.4, 2.4)	0.6 (−0.4, 1.6)
Nurse (RN)	−0.1 (−0.7, 0.5)	−0.3 (−0.9, 0.3)
Clinical associate	0.6 (−0.1, 1.2)	0.3 (−0.5, 1.0)
Administrative clerk	1.1 (0.2, 1.9)	0.5 (−0.3, 1.4)

PCP primary care provider
†For each primary care (i.e., PACT) role, fixed effects linear regression models were adjusted for proportions of survey respondents who were female, under 50 years, and had a VHA tenure less than 5 years; number of support staff/PCP; and an indicator for year (ref=2014)

Adjusted Results

Associations between enrollment and the proportion of burnout at VHA facilities were not statistically significant for any primary care role in adjusted models (model group 2, Table 2). In adjusted models of the year-over-year change in enrollment, nurse burnout remained significantly associated with enrollment change (model group 4, Table 3). A 1% increase in enrollees/PCP since the previous year was associated with a 0.2 pp increase in the proportion of nurses reporting burnout (95% CI: 0.1 to 0.3). Based on adjusted mean burnout in 2015 (see Appendix Table A2), for example, a 1% increase in patient enrollment (or approximate increase of 15 enrollees) from 2014 to 2015 at a facility would predict an increase in nurse burnout from 48.0% to 48.2%. This assumes the proportions of nurses who were female, had tenures less than 5 years, and were under 50 years old at the facility were at the average and with average levels of staff support/PCP.

Also, recall the median year-over-year change in enrollment was a decrease of 2.58% enrollees/PCP from 2017 to 2018 (Table 1). Therefore, for a facility experiencing median year-over-year change in enrollment, a 2.58% decrease in enrollment (or a decrease of approximately 38 enrollees/PCP from 2017 to 2018) equated to a 0.5 pp decrease in nurse burnout in 2018 compared to 2017. Coefficients for the absolute (Appendix Table A1) and relative (Appendix Table A2) burnout effects in the unadjusted and adjusted models were reported in the appendices.

Table 3 Percentage Point (pp) Change in Facility-Level Burnout Proportion Associated with a 1% Year-Over-Year Increase in Veteran Enrollees/PCP*

Primary care role	Model Group 3: Unadjusted pp change in burnout (95% CI)	Model Group 4: Adjusted pp change in burnout (95% CI)†
PCP	0.1 (−0.1, 0.3)	0.1 (−0.1, 0.3)
Nurse (RN)	0.2 (0.1, 0.3)	0.2 (0.1, 0.3)
Clinical associate	0.1 (−0.1, 0.2)	0.0 (−0.1, 0.2)
Administrative clerk	0.1 (−0.1, 0.2)	0.0 (−0.1, 0.2)

PCP primary care provider
†For each primary care (i.e., PACT) role, fixed effects linear regression models were adjusted for proportions of survey respondents who were female, under 50 years, and had a VHA tenure less than 5 years; number of support staff per PCP; and an indicator for year (ref=2015)

Secondary Analyses

Enrollment/PCP was weakly correlated with mean panel size (ρ=0.06). Neither absolute panel size nor the relative measure of year-over-year change in panel size were significantly associated with burnout for any of the PACT roles (see models 5–8 in Appendix Tables A3 and A4).

DISCUSSION

Our findings indicate that patient enrollment was not a determinant of burnout in VHA primary care, except among nursing staff. Both patient enrollment and burnout varied substantially among VHA facilities over the time frame studied. Yet, we found only a modest association between nurse burnout and year-over-year change in patient enrollment. Otherwise, the size of the enrolled patient population at VHA facilities was not associated with burnout in primary care within the enrollment levels observed during this study period.

To our knowledge, this is one of the first studies to assess associations between change in patient-related workload and burnout in multiple primary care occupations.[18] Compared to previous research, estimated burnout for VHA PCPs in this study was on par with estimates observed elsewhere, which were at or above 50%.[4,27] For VHA RNs in this study, burnout was slightly higher than previous estimates, which were approximately 30%.[2–4] While most research on burnout in healthcare focuses on physicians or nurses,[18] we also assessed burnout in other primary care occupations, which had notable levels of burnout. We found 30% of clinical associates and upwards of 40% of administrative staff reported burnout. Patient-related workload is shared across primary care team members, and excess workload may disproportionately affect some primary care team members. Evaluating burnout at the organizational level acknowledges that burnout in health care is a shared problem and aids in identifying aggregate burnout indicators that may be affected through policy or facility-wide interventions.[6]

We relied on a novel measure of workload—VHA patient enrollment—as a potential burnout indicator. Previous VHA research observed a nearly linear relationship between regional growth in patient enrollment and another important organizational outcome, poorer patient-reported access to care.[39] That finding suggested that patient enrollment may stress health systems with potential consequences for health care staff. While patient enrollment is not a perfect proxy for staff workload, its organizational utility in predicting patient health care use drove our interest in using it as a potential burnout predictor.

We included panel size as a secondary analysis based on reviewer feedback and found that enrollment and panel size were weakly correlated. Also, unlike enrollment, panel size was not predictive of burnout for any primary care role. At the

VHA, panel size is set to an organizational standard of 1200 patients per FTE physician-led primary care team (900 patients for NP- and PA-led teams), and this measure of patient-related workload is balanced through a computerized application, the PCMM, for each individual PCP. Therefore, panel size may not reflect the pressure of patient load on a health system in the way that enrollment does. While we can conceptualize primary care workload in numerous ways, more research on how to best approximate patient-related workload through organizational metrics is needed. The limited associations observed in this study contrast with prior findings on patient-related workload and burnout at the VHA. Previous research observed a strong association between primary care team panel overcapacity (defined as having a panel greater than 1200 patients per full-time primary care team) and team member burnout.[21] We found different associations for both our enrollment-based primary analyses and secondary analyses of panel size. However, the effects of patient-related workload may be different at the team level than at the facility level.

Still, the positive association between growth in patient enrollment and nurse burnout observed in our study is novel. Prior research suggests that increasing reliance on nurses within primary care teams was associated with nurse burnout.[40] More research is needed on whether nurses bear a disproportionate burden of workload when enrollment grows at VHA facilities. Based on our estimates in the adjusted analyses of relative enrollment change, if the percentage of enrollees/PCP increased by 10%, two more nurses for every 100 nurses (an additional 2%) employed at that facility would experience burnout. While this is a small effect, nurse burnout could have important consequences when added up to the organizational level, such as from costly turnover and patient satisfaction. A recent study of nurse burnout found that a 10% increase in nurse burnout was associated with up to 1.3% lower ratings of patient satisfaction.[41]

Findings in this study indicate that not all patient-related workload may be associated with burnout. The size of the enrollment ratios observed in this study may also fall within a manageable realm, potentially below a threshold where patient enrollment numbers could be associated with burnout. It is important to note that not all enrollment at the VHA translates into health care utilization. Only about 50% of enrollees use VHA primary care within 6 months after enrollment,[42] and almost 8% of Veterans live far enough from the nearest VHA clinic to be eligible to seek covered care outside of VHA facilities through Community Care provider networks.[43] Patient assignment to primary care teams may not directly correlate with added workload as some enrollees may use little or no VHA care or use it in a limited way, such as through pharmacy services.

Additionally, patient enrollment may not be equally distributed across primary care teams. The VHA's PCMM distributes patient workload across primary care teams, and this may correct for patient-related workload on a team-level basis—a factor which would not be picked up when averaging patient enrollment by facility. Previous research also suggests that, for providers, being female, younger in age, and having shorter work tenure are associated with increased burnout.[5,44] While we adjusted for the proportion of these demographics by facility, future research may find stronger associations when analyzing these characteristics in individual or team level research.

Evidence is inconclusive on the optimal number of patients under a provider's care, including in association with burnout.[23] Our findings suggest that patient enrollment is limited in predicting burnout. However, the enrollment to provider ratios observed in this VHA study may be substantially lower than in other health systems. Health systems with high ratios of patients to providers (with estimates upwards of >4000 patients per PCP in some studies)[23] may observe different associations. Burnout associations at higher levels of patient enrollment and potential threshold effects of enrollment on burnout could be further explored.

Limitations

Limitations of this research include the timing of the AES compared to estimation of enrollment and non-response bias. The AES is offered in the spring of each year; however, enrollment measures were only available in September for 2014–2018. Also, survey non-response could be associated with burnout which, in turn, may lead to under-reporting of burnout for VHA personnel. This is particularly true if employees experiencing burnout declined to take the survey. Another limitation was reporting bias, particularly if respondents under or overestimated burnout at the time of survey response compared to their annual average burnout level. Additionally, unmeasured time-varying confounders could include contemporaneous events or factors associated with burnout which systematically varied within facilities over time. These factors could offer alternative explanations for changes in burnout besides patient enrollment.

CONCLUSION

Identifying organizational-level predictors of burnout can inform system-wide policy and intervention opportunities and complement individual-level interventions. However, accurate identification of burnout predictors at the organizational level is challenging.[6] We did not observe an association between patient enrollment and burnout for primary care staff, except for nurse burnout associated with patient enrollment growth. More longitudinal burnout research on patient-related workload is needed to improve causal inference, particularly at the team or unit level in team-based practice environments.

Acknowledgements: *We wish to acknowledge the contributions of the VHA National Center for Organization Development and thank the VHA employees who took part in the surveys used in this study. The authors would also like to thank Johnny Mao and Ryan Sterling for their technical assistance.*

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Supplementary Information The online version contains supplementary material available at https://doi.org//10.1007/s11606-023-08034-5.

Funding *This study was supported by the VHA Health Services Research and Development Investigator Initiated Award #15-363. AO's work on this study was supported by the National Institute for Occupational Safety and Health (NIOSH) under Federal Training Grant T42OH008433.*

Declarations:

Conflict of Interest: *The authors have no conflicts of interest to disclose in relation to this work.*

Disclaimer: *The content is solely the responsibility of the authors and does not necessarily represent the official views of NIOSH, or the position or policy of the Department of Veterans Affairs or the United States Government.*

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