













Regional variation in financial hardship among US veterans during the COVID-19 pandemic

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Abstract

Geographic variation in hardship, especially health-related hardship, was identified prior to and during the pandemic, but we do not know whether this variation is consistent among Veterans Health Administration (VHA)–enrolled veterans, who reported markedly high rates of financial hardship during the pandemic, despite general and veteran-specific federal policy efforts aimed at reducing hardship. In a nationwide, regionally stratified sample of VHA-enrolled veterans, we examined whether the prevalence of financial hardship during the pandemic varied by US Census region. We found veterans in the South, compared with those in other census regions, reported higher rates of severe-to-extreme financial strain, using up all or most of their savings, being unable to pay for necessities, being contacted by collections, and changing their employment due to the kind of work they could perform. Regional variation in veteran financial hardship demonstrates a need for further research about the role and interaction of federal and state financial-assistance policies in shaping risks for financial hardship as well as potential opportunities to mitigate risks among veterans and reduce variation across regions.

Key words: financial hardship; veterans; census region; ADI; employment; COVID-19.

Introduction

Many US veterans faced significant financial and material hardship¹⁻⁴ prior to the COVID-19 pandemic, and veterans, regardless of infection status, also reported high rates of

financial hardship⁵⁻⁷ during the pandemic. Numerous state and federal policies were enacted during the pandemic, such as expanded unemployment insurance, eviction moratoriums, restrictions on cost-sharing for COVID-19–related care, expanded child tax credits, economic impact payments, and

Received: April 17, 2024; Accepted: June 4, 2024

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paid medical and family leave.^{8,9} While some of these were shown to significantly reduce poverty and material hardship,¹⁰⁻¹³ and benefit veterans specifically,¹⁴ these programs varied across the country and largely expired when the COVID-19 national emergency declaration was withdrawn. Since government COVID-19-specific assistance has ended, evidence shows that material hardship is on the rise.¹⁵

There is also evidence of persistent regional variation in financial hardship, particularly health-related financial hardships, including during the COVID-19 pandemic.¹⁶⁻²¹ Geographic variation in financial and material hardship is also evident among veterans,^{2,22-24} with much of this literature focusing predominantly on food insecurity and homelessness. However, studies have yet to explore geographic variation in pandemic financial hardship among veterans, which may offer insight into the high rates of veteran-reported hardship and possible targets for intervention. We undertook the current study to examine geographic variation in pandemic-related financial hardship among VHA-enrolled veterans.

Data and methods

Study design and population

We conducted a cross-sectional survey to assess geographic variation in pandemic-related financial hardship among Veterans Health Administration (VHA)-enrolled veterans. As previously described, survey participants were sampled from an existing electronic health record-based cohort of VHA enrollees that was assembled and designed to assess the effect of COVID-19 on a broad range of long-term outcomes.²⁵ The initial cohort included all VHA enrollees with a first SARS-CoV-2 infection between March 1, 2020, and April 30, 2021.

We used a stratified random-sampling scheme (stratified by month, census region, and COVID-19 hospitalization) to select, from the initial cohort, 600 veterans infected with COVID-19 between October–December 2020 and February–April 2021 (100 from each month).²⁵ Surveys were completed 1.5 years after each veteran's initial infection date. After the sampled veterans with COVID-19 completed the survey, we invited up to 5 matched uninfected comparators to participate and complete surveys. Only veterans who were alive and residing in the United States at the time of survey initiation were eligible to participate. The survey instrument and study methods were approved by the Department of Veterans Affairs (VA) Institutional Review Board and all veterans provided verbal informed consent to participate. All participants were compensated \$10 for their time. The survey did not include reference to infection or COVID-19 status so the same survey could be used for all participants regardless of COVID-19 status.

Measures

Financial hardship

The survey was designed to assess multiple post-COVID-19 outcomes, including financial hardship, measured using 10 items. The questions included 1 Likert scale question about perceived health-related financial strain²⁶ and 9 indicator questions (yes/no) measuring specific financial hardships.^{27,28} Specifically, veterans were asked if they skipped or delayed needed medical care due to costs; took less prescribed medication due to costs; used up most or all savings; were contacted by collections; declared bankruptcy; were unable to pay for

necessities like food, heat, or housing; lost a job; had to change the kind of work they could do; or had a loved one take time off work to care for them. We prefaced each question with “since the beginning of 2020” to capture the participant's experience of financial hardship during the pandemic. We report on all of these questions, as well as 1 composite outcome reporting any overall financial hardship (answering yes to any of the financial hardship indicators or reporting “severe” or “extreme” health-related financial strain).

Census region

Census region²⁹ was our primary independent variables. We collected information on each participant's residential census region (Northeast, South, Midwest, and West) from the VHA's Corporate Data Warehouse.³⁰

Statistical analyses

We applied survey sampling and nonresponse weights to all analyses to weight all measures to represent veterans in the parent cohort from which our study was sampled. We then fit survey-weighted logistic regression models with census region as the independent variable to assess their association with each financial hardship outcome (dependent variables). Region was modeled as a 4-level categorical variable with South as the reference region. We adjusted for participant age (years, continuous), sex, race, ethnicity, distance to nearest VA medical center (miles, continuous), and census block-level Area Deprivation Index (ADI)³¹ (continuous) and Gagne comorbidity index, which combines conditions in the Charlson and Elixhauser scales.³²

Fitted models were used to estimate unadjusted and adjusted predicted probability and CIs of each outcome for comparison across region. Adjusted probabilities were standardized (ie, marginalized) to the sample distribution of covariates. To assess regional differences in the probability of each financial hardship outcome, we estimated average marginal effects with the South region as the reference.¹⁸ Average marginal effects with *P* values < .05 were considered statistically significant. All analyses were conducted in R (version 4.3.1; R Foundation for Statistical Computing, Vienna, Austria); marginal effects and probabilities were estimated using the “marginaleffects” package (version 0.16).

Results

Participant characteristics

Among the 600 veterans with COVID-19 sampled and invited to participate in the survey, 548 were alive and living in the United States; 194 (35.4%) completed surveys along with 194 of their matched comparators for a total analytic sample of 388. The survey sample was predominantly male (90.8%), non-Hispanic (91.4%), White (68.1%), and urban (67.5%), with a mean age of 60.9 years (SD = 13.8) (see [Table S1](#)). Most surveyed veterans were from the South census region (42.3%), followed by the Midwest (23.3%), West (19.8%), and Northeast (14.5%). In general, veterans' demographic and health characteristics were consistent across census region, although we observed some variation in race and ethnicity.

Census region

In unadjusted (see [Table 1](#)) and adjusted (see [Figure 1](#), [Table S2](#)) analyses, veterans in the South had a significantly

Table 1. Unadjusted probabilities of financial hardship outcomes overall by US Census region.

Outcome	Unadjusted probability, % (95% CI)				
	Overall	Census region			
		South	Midwest	West	Northeast
Any financial hardship	66.79 (59.34, 73.49)	76.77 (66.62, 84.55)	64.05 (49.69, 76.27)	55.95 (39.01, 71.61)	56.81 (34.56, 76.61)
Severe-to-extreme financial strain	7.86 (4.85, 12.51)	13.24 (7.17, 23.18)	6.32 (2.55, 14.83)	2.50 (0.78, 7.75)	1.93 (0.41, 8.58)
Skipped or delayed medical care	18.12 (13.06, 24.59)	19.39 (11.84, 30.11)	18.09 (8.57, 34.24)	15.11 (7.03, 29.54)	18.56 (7.97, 37.50)
Took less medication	9.20 (5.67, 14.61)	10.21 (4.99, 19.75)	8.84 (3.03, 23.13)	11.06 (4.19, 26.10)	4.34 (0.66, 23.56)
Used up most or all savings	38.27 (31.10, 45.98)	52.14 (40.60, 63.45)	33.49 (20.65, 49.34)	24.49 (12.92, 41.49)	24.19 (11.46, 44.02)
Contacted by collections	22.81 (17.10, 29.76)	25.28 (16.40, 36.86)	32.89 (20.04, 48.95)	6.11 (2.84, 12.64)	22.08 (10.31, 41.13)
Declared bankruptcy	2.22 (0.91, 5.27)	4.11 (1.41, 11.40)	1.04 (0.14, 7.11)	1.16 (0.23, 5.58)	0.00 (0.00, 0.00)
Unable to pay for necessities	19.01 (13.50, 26.11)	27.40 (17.47, 40.22)	17.70 (9.23, 31.27)	12.34 (5.01, 27.33)	5.73 (1.26, 22.43)
Lost a job	12.98 (8.58, 19.17)	13.95 (7.30, 25.04)	16.79 (7.49, 33.47)	9.90 (4.35, 20.97)	8.20 (2.52, 23.58)
Changed kind of work	24.97 (19.05, 32.00)	35.24 (24.76, 47.36)	15.51 (7.31, 29.93)	16.44 (9.44, 27.09)	21.79 (9.90, 41.38)
Loved one took time off work	20.28 (14.90, 26.99)	20.31 (12.48, 31.29)	13.62 (6.90, 25.13)	24.80 (12.99, 42.15)	24.78 (10.93, 46.94)

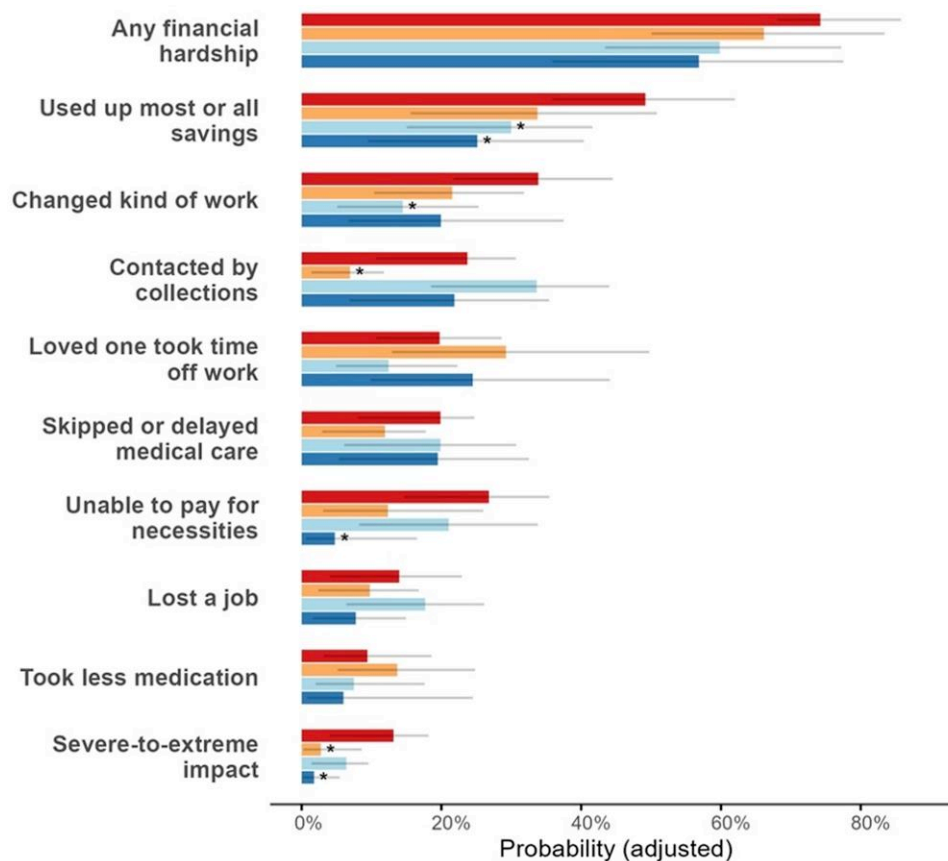


Figure 1. Adjusted probabilities of financial hardship outcomes by US Census region (included in Table S2). Census regions are represented by horizontal bars next to each outcome, from top to bottom (South, West, Midwest, Northeast) and by the following colors: red = South; orange = West; light blue = Midwest; dark blue = Northeast. Predicted probabilities are adjusted for age, sex, race/ethnicity, Gagne comorbidity index, distance to VA medical center; and ADI. * $P \leq .05$ (compared with South region); based on z-test of average marginal effect. Abbreviations: ADI, Area Deprivation Index; VA, Department of Veterans Affairs.

higher probability of experiencing 5 financial hardship outcomes than those in other regions. In unadjusted analyses, a significantly greater proportion of veterans in the South reported severe-to-extreme financial strain compared with veterans in the West and Northeast (Table S3); these differences remained significant in the adjusted analyses (South, 13.1%, 95% CI: 4.0%–18.14%; West, 2.7%, 95% CI: 0.2%–8.6%; and Northeast, 1.8%, 95% CI: 0.1%–5.4%).

In unadjusted analyses, over half of the veterans in the South reported using up most or all of their savings compared

with less than one-quarter of those in the West and Northeast. In adjusted analyses, the probability of using up most or all savings was significantly higher in the South (49.2%, 95% CI: 35.8%–62.0%) than in the Midwest (30.0%, 95% CI: 15.0%–41.6%) and Northeast (25.1%, 95% CI: 9.5%–40.4%) regions.

In unadjusted analyses, veterans in the South were significantly more likely to report the kind of work they could do changed than those in the West and Midwest; differences between the South (33.9%, 95% CI: 21.7%–44.5%) and

Midwest (14.5%, 95% CI: 5.1%–25.3%) remained significant after adjustment. In adjusted analyses, veterans in the South had a higher probability of being unable to pay for necessities than those in the Northeast (South, 26.8%, 95% CI: 14.6%–35.4%; Northeast: 4.8%, 95% CI: 0.6%–16.5%), and a higher probability of being contacted by collections than those in the West (South, 23.7%, 95% CI: 10.6%–30.6%; West: 6.9%, 95% CI: 1.4%–11.8%).

Discussion

In our study population, veterans residing in the South had greater risks of experiencing severe-to-extreme financial strain, as well as using up all or most of their savings, being unable to pay for necessities, being contacted by collections, and changing their kind of work. These differences persisted even when controlling for individual demographic characteristics and comorbidities and local social and economic conditions (ADI), suggesting that regional- and perhaps state-level factors and policies may have had a greater impact on pandemic-related hardship than pre-existing local conditions. There are numerous ways in which state-level COVID-19 conditions and policies, often mirrored within regions, varied across the country.^{8,12}

Federal and state policies, aimed at mitigating individual pandemic-related financial hardships,⁸ as well as unique pandemic-assistance programs available to veterans, including VHA medical debt relief and state-specific emergency funds,^{33,34} were implemented between 2020 and 2022, and evidence suggests that veterans took advantage of some of these programs at high rates.¹⁴ However, the form and duration of assistance programs varied substantially between states.^{12,16} For example, some states enacted regulations requiring private insurers to waive or limit cost-sharing,³⁵ which has been linked to greater testing, fewer COVID-19 deaths, and increased primary care use during the pandemic.^{36,37} Individuals in the South, Midwest, and West regions experienced greater out-of-pocket spending for COVID-19 hospitalizations.³⁸ It is possible that regional variation in hardship among veterans reflects these more heterogeneous state policies. Further, as most federal and state programs have ended, increases in financial hardship have been noted.¹⁵

Prior to and during the pandemic, rates of food insecurity, forgone medical care, and poverty have consistently been higher in the South census region,^{16-21,39} and while veterans throughout the country generally experience lower rates of poverty than the general public, they are not immune to state and regional variation in these outcomes.^{23,24} Pre-existing state-specific health care policies and programs (or lack thereof) have been linked to financial hardship,^{40,41} and may be a source of regional variation in subsequent pandemic- and COVID-19-related financial hardship among veterans. For example, state expansions of Medicaid have been associated with reductions in both nonmedical and medical financial hardship,⁴² yet many states in the US South have yet to expand Medicaid,⁴³ and veterans, including those with low incomes,⁴⁴ disproportionately reside in the South.⁴⁵ Also in the South, half of states lack consumer protections from surprise medical bills.⁴⁶

We acknowledge several limitations to our data and analyses. We lack information on veterans' individual finances, such as income or wealth, and rely on veteran self-report of

financial hardships, rather than direct measures of health care costs. However, our self-reported outcomes center on how veterans experience financial burden and perceive it to impact their economic and health care decisions in varied ways. We also lack pre-pandemic data on hardship and are unable to examine temporal changes in hardship that may be attributable to the pandemic. The ADI and other composite measures of area social and economic conditions have strengths and weaknesses and may be a confounding factor.⁴⁷⁻⁴⁹ Our data are also underpowered to examine differences in financial hardship at the state level or to account for state-level differences in various public benefits.

Our findings demonstrate that some forms of pandemic-related financial hardship among veterans varied considerably across census regions. All of these findings point to the potential power of state-level policies and programs, in addition to VA and related federal programs, to impact veterans' experiences of health-related financial hardship.⁴⁴ The implementation of unique veterans' assistance programs, particularly medical debt relief and state-specific emergency funds,^{33,34} and state-level variation in access to these programs are an important opportunity to explore possible policy solutions to decrease veterans' experiences of disaster or pandemic financial hardships. Information on to what extent veterans accessed non-VA state- and federal-assistance programs would also shed light on potential access barriers unique to veterans. Although not specific to a single policy, our findings raise important questions about the role and interaction of federal and state policies in shaping the risk of, and mitigation strategies for, financial hardship among veterans and the general public.

Supplementary material

Supplementary material is available at *Health Affairs Scholar* online.

Funding

This work was supported by grants C19-21-278, C19-21-279, SDR 02-237, and SDR 98-004 from the VA Health Services Research. All statements in this article, including its findings and conclusions, are solely those of the authors and do not necessarily represent the views of the US Department of Veterans Affairs or the US government.

Conflicts of interest

Please see ICMJE form(s) for author conflicts of interest. These have been provided as supplementary materials.

Notes

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