JOURNAL OF VETERANS STUDIES

National Comparison of Veterans and Non-veterans Medical Center Patient Satisfaction Ratings: An HCAHPS Survey Data Analysis

RESEARCH

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VIRGINIA TECH PUBLISHING

ABSTRACT

This study compared patient satisfaction with quality of care received in US Department of Veterans Affairs (VA) hospitals and non-VA hospitals. Out of the 137 VA hospitals in operation, 113 reported Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey results, which were used in this analysis. Each VA hospital was matched with a non-VA hospital within the same city that had the most similar bed count. Hospitals were compared using eight of the 29 total questions on the HCAHPS patient satisfaction survey, covering areas of care delivery including: doctor and nurse communication, staff responsiveness, cleanliness, preference consideration, care transition, overall rating, and likelihood of recommendation. For all eight questions, VA hospitals received significantly more positive responses, and non-VA hospitals received significantly more moderate and negative responses. This showed that patients were more satisfied with care in VA hospitals than non-VA hospitals. A secondary analysis aimed to determine whether there were differences in VA patient satisfaction between different regions of the US. The 113 VA hospitals were grouped into 4 regions (Northeast, Midwest, South, and West) and patient satisfaction was compared using the same eight HCAHPS questions as the primary analysis. Overall, results did not yield extensive differences between these regions; however, there was a trend of the South having more negative responses than the Midwest. Results suggest that recent calls for higher-quality VA care and increases in VA funding have led to greater patient satisfaction for our nation's veterans.

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KEYWORDS:
Hospital; Veterans Affairs; Quality; United States; Patient Satisfaction

TO CITE THIS ARTICLE:
Sellers, J. A., & Kitchen, N. M. (2023). National Comparison of Veterans and Non-veterans Medical Center Patient Satisfaction Ratings: An HCAHPS Survey Data Analysis. *Journal of Veterans Studies*, 9(3), pp. 89–97. DOI: https://doi.org/10.21061/jvs.v9i3.451

The United States Department of Veterans Affairs' (VA) Veterans Health Administration (VHA) has become the country's "largest integrated health network," consisting of over 1,000 "health care facilities [and] serving 9 million veterans" (Our Missions, Vetarans Health Care section, US Department of Veterans Affairs, 2023a). With the goal of providing veterans the most effective, high-quality health care, the VA has set out to prioritize consistent advancements in the care that they deliver. According to the VA's *About the Department* webpage (2023), the push to, "Strive for the highest quality and continuous improvement" (Our Core Values–ICARE section, para. 5) within the services they provide, best outlines how the department plans to uphold their core value of excellence.

In October of 2006, the Centers for Medicare and Medicaid Services (CMS) implemented the first nationally utilized, standardized survey to gauge patient perspective on the quality of care received in hospitals (Centers for Medicare and Medicaid Services [CMS], 2021). CMS used the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey to achieve three goals: (a) gather patient perception data to make comparisons between hospitals, (b) incentivize hospitals to improve care by publicly reporting data, and (c) increase transparency regarding whether satisfactory quality improvement coincides with public investment (CMS, 2021, HCAPS Overview section, para. 2). The standardized HCAHPS survey consists of 29 questions regarding a patient's experiences in the hospital, covering topics such as provider/staff communication, care transition, quality of environment, and overall rating. Because of the standardized nature of the HCAHPS survey, it lends itself to be offered by a wide range of hospitals and other health care facilities, including those within the VA system.

Throughout their histories, the VA and VHA have been under scrutiny for a number of reasons, including alleged provision of inadequate health care (Urbi, 2018). Past research involving quality comparisons between VA and non-VA hospitals is sparse, but for the few select studies that have been published on this topic, contradicting results obstruct the ability to make distinct conclusions on the matter. For example, it was determined that VA hospitals performed well in terms of health outcomes such as mortality and readmission metrics; yet they lacked proficiency in providing a satisfactory patient experience (Blay et al., 2017). Conversely, a study found that hospitals within the VA system performed significantly worse in terms of readmission and health outcomes when compared to non-VA facilities (Anhang Price et al., 2018). Despite the lack of agreement regarding where VA hospitals thrive and where they struggle when compared to non-VA hospitals, it is widely accepted that there are major differences in quality of care delivered between facilities within this system (Anhang Price et al., 2018; US Department of Veterans Affairs, 2023b). Determining the causal factors that bring about these differences is critical for closing such apparent gaps in quality.

This study examines how VA hospitals compare to non-VA hospitals through the lens of health care quality and patient satisfaction. The analyses of HCAHPS survey data involved in this study aim to explore potential differences within several areas of health care delivery between VA and non-VA hospitals, as well as in VA health care between geographic regions within the United States (US). Given that past research has suggested quality of care for veterans is deficient, this study may help to identify specific areas of care delivery in which improvements should be made.

METHODS

APPROACH AND DATA COLLECTION

Data and analyses utilized in this research were quantitative in nature. Publicly reported HCAHPS survey data from October 2022 were obtained through CMS. Administered 48 hours to 6 weeks after discharge, the HCAHPS survey can be offered to and completed by any patient, regardless of medical diagnosis, and it is not restricted to Medicare beneficiaries alone (CMS, 2021).

Out of the 29 questions that comprise the HCAHPS patient satisfaction survey, we selected the eight questions that we felt best encompassed the most important facets of a hospital experience from a patient's perspective. In addition to their specificity to our research interest, these eight questions were selected in order to avoid limitations of time and resources associated with analyzing all 29 questions and were identified prior to any of the performed analyses. The selected questions pertained to care transition (questions 21 and 22), cleanliness (question 8), doctor communication (survey question 7), likelihood of recommendation (question 19), nurse communication (question 3), overall rating (question 18), preference consideration (question 20), and staff responsiveness (questions 4 and 11).

Each question within the HCAHPS survey offers the patient four possible options with which they can respond to rate how the health care facility performed in each area of care delivery. The nature of the four response option is specific to each question; however, all options are scaled similarly (e.g. from 1–4) to cover differing levels of satisfaction (e.g. Never, Sometimes, Usually, Always). Although there were four possible response levels, CMS combined the two most negative response percentages for each question (e.g. Sometimes, Never) when the HCAHPS survey data was

published (Hospital Consumer Assessment of Healthcare Providers and Systems [HCAHPS], 2023). Consequently, we refer to data from three resulting response categories (e.g. Sometimes or Never, Usually, Always) for the remainder of this paper.

DATA ORGANIZATION

To investigate our primary topic of interest (i.e., comparing patient satisfaction between VA and non-VA hospitals), data from the eight selected survey questions were first gathered for the 113 VA hospitals who reported data. Next, the same data were obtained for 113 non-VA hospitals that were matched to the VA facilities in terms of geographic location (specifically the city of origin) and closest number of beds as an approximate matching strategy for hospital size. Matching VA and non-VA hospitals in this manner was intended to best account for factors such as funding and surrounding community demographics that may otherwise influence our analysis. Non-VA bed count values were provided by the American Hospital Directory (2022) and counts for VA hospitals were obtained through the Veterans Health Administration website (US Department of Veterans Affairs, 2023c).

The objective of our secondary analysis was to compare patient satisfaction scores between VA hospitals in different locations. To form groups of states based on location, we utilized the US Census Bureau's (2021) four region classification system that designates states to either the Northeast, the Midwest, the South, or the West. Using this strategy of regional grouping, 28 VA hospitals were assigned to the Northeast group, 28 to the Midwest, 45 to the South, and 21 to the West. The eight survey questions used in our primary analysis were also the focus of this secondary investigation, and the response data for each VA hospital were placed into the corresponding regional group.

DATA ANALYSIS

For our primary analysis, data from each of the eight chosen survey questions were compared between VA and non-VA hospitals. For each question, the overall percentage of responses for each of the three survey answer categories was separately compared between the two hospital types using independent sample *t*-tests, resulting in a total of three *t*-tests per question. In this way, we could compare patient satisfaction between VA and non-VA hospitals separately for each of the three graded levels of possible response per question.

For our secondary analysis, we similarly separated each of the eight questions into their three response categories. However, we used data pertaining only to VA hospitals and compared responses between facilities when grouped by geographical region (Northeast, Midwest, South, and West). For each of the eight selected questions, the data were analyzed using three separate one-way ANOVAs (i.e., one for each possible response category). Where necessary, significant ANOVAs were followed up with Tukey HSD pairwise comparisons to determine where possible differences between specific pairs of geographical regions existed.

In all cases, Levene's test was used to test homogeneity of variances between compared groups, and a Shapiro-Wilk test was used to assess whether data was normally distributed. In cases where either of these parametric assumptions were violated, non-parametric tests were used (i.e., Mann-Whitney *U* tests in place of *t*-tests, and Kruskal-Wallis with Dwass-Steel-Critchlow-Fligner [DSCF] tests for post-hoc comparisons in place of one-way ANOVAs with Tukey HSD post-hoc comparisons). To minimize possible familywise error rate for multiple comparisons, a Bonferroni corrected alpha threshold of 0.017 (i.e., 0.05/3 tests) was used to assess statistical significance for sets of tests performed for each question. Bonferroni corrected alpha thresholds were not used for post-hoc pairwise comparisons, as Tukey HSD and DSCF tests control for familywise error rate of multiple comparisons. For significant main effects, we report effect size as Cohen's *d* for *t*-tests, eta-squared (η^2) for ANOVAs, rank biserial correlation (r_{rb}) for Mann Whitney *U* tests, and epsilon squared (ε^2) for Kruskal-Wallis tests. All statistical tests were performed in Jamovi (2023) and (unless otherwise stated above) assessed for significance using an alpha threshold of 0.05.

ARRANGEMENTS

Clearance for research was obtained through the Pennsylvania State University Institutional Review Board (IRB STUDY00021642). A non-human subjects research determination was made by the IRB during the initial stages of research conception. All utilized data and informational values were obtained through publicly reported sources.

RESULTS

COMPARISON OF PATIENT SATISFACTION BETWEEN VA AND NON-VA HOSPITALS

Descriptive statistics regarding VA and non-VA hospitals for the eight selected HCAHPS survey questions and their three responses regarding satisfaction with care can be found in Table 1 (below). After assessing whether data was normally distributed and variance between hospital types was homogeneous, eight of the 24 potential responses across the eight questions of interest warranted analysis by independent samples *t*-test. The remaining 16 responses were analyzed

HCAHPS SURVEY QUESTION	RESPONSE	VA		NON-VA		TEST STATISTIC	P-VALUE	EFFECT SIZE
		MEAN (SD)	MEDIAN (RANGE)	MEAN (SD)	MEDIAN (RANGE)			
1. Nurses Communicated Well	1. Always	80.59 (5.04)	81 (24)	75.56 (4.85)	76 (30)	**U = 2928**	**<.0001***	**r_{rb} = 0.541**
	2. Usually	14.93 (3.36)	15 (17)	17.96 (2.46)	18 (14)	**U = 2861**	**<.0001***	**r_{rb} = 0.552**
	3. Sometimes or Never	4.48 (2.28)	4 (11)	6.49 (3.38)	6 (18)	**U = 3930**	**<.0001***	**r_{rb} = 0.375**
2. Doctors Communicated Well	1. Always	81.67 (3.83)	81 (20)	76.66 (4.15)	77 (24)	**t = –9.426**	**<.0001***	**D = 1.254**
	2. Usually	14.05 (2.80)	14 (15)	16.94 (2.47)	17 (14)	**U = 2772**	**<.0001***	**r_{rb} = 0.566**
	3. Sometimes or Never	4.27 (1.74)	4 (9)	6.40 (2.58)	6 (13)	**U = 3192**	**<.0001***	**r_{rb} = 0.500**
3. Help Was Received Promptly	1. Always	68.19 (7.72)	67 (42)	58.19 (7.14)	58 (49)	**U = 1966.5**	**<.0001***	**r_{rb} = 0.692**
	2. Usually	22.25 (4.77)	23 (37)	27.31 (4.02)	28 (25)	**U = 2156.5**	**<.0001***	**r_{rb} = 0.662**
	3. Sometimes or Never	9.57 (4.55)	9 (21)	14.50 (5.88)	14 (34)	**U = 3120.5**	**<.0001***	**r_{rb} = 0.511**
4. Room and Bathroom Were Clean	1. Always	73.64 (6.71)	74 (33)	67.31 (6.52)	67 (35)	**t = –7.191**	**<.0001***	**D = 0.957**
	2. Usually	17.52 (4.07)	18 (21)	20.26 (3.09)	20 (18)	**U = 3747**	**<.0001***	**r_{rb} = 0.413**
	3. Sometimes or Never	8.84 (3.34)	9 (19)	12.43 (4.40)	12 (21)	**U = 3282.5**	**<.0001***	**r_{rb} = 0.486**
5. Patient Preferences Were Taken Into Consideration†	1. Strongly Agree	47.85 (5.79)	48 (30)	41.58 (6.08)	41 (33)	**t = –7.892**	**<.0001***	**D = 1.055**
	2. Agree	44.43 (4.27)	44 (22)	48.85 (3.76)	49 (20)	**t = 8.213**	**<.0001***	**D = 1.098**
	3. Disagree or Strongly Disagree	7.72 (2.91)	8 (18)	9.59 (4.01)	9 (24)	**U = 4532.5**	**.0003***	**r_{rb} = 0.277**
6. Transition Of Care Was Understood Upon Discharge	1. Strongly Agree	56.92 (5.06)	57 (29)	48.48 (5.60)	48 (27)	**t = –11.887**	**<.0001***	**D = 1.581**
	2. Agree	37.39 (3.89)	38 (23)	44.13 (3.79)	44 (20)	**t = 13.182**	**<.0001***	**D = 1.754**
	3. Disagree or Strongly Disagree	5.69 (2.04)	6 (11)	7.39 (2.79)	7 (15)	**U = 4069.5**	**<.0001***	**r_{rb} = 0.363**
7. Hospital Rating	1. 9–10 (High)	74.20 (6.83)	74 (37)	66.67 (8.37)	67 (43)	**U = 3074.5**	**<.0001***	**r_{rb} = 0.518**
	2.7–8 (Medium)	18.58 (4.39)	19 (26)	22.04 (4.40)	22 (29)	**t = 5.929**	**<.0001***	**D = 0.789**
	3. 0–6 (Low)	7.22 (3.46)	7 (22)	11.28 (4.95)	10 (26)	**U = 3073.5**	**<.0001***	**r_{rb} = 0.519**
8. Would You Recommend This Hospital?	1.Yes, Definitely	72.99 (7.67)	74 (39)	66.44 (9.96)	68 (46)	**U = 3908.5**	**<.0001***	**r_{rb} = 0.388**
	2. Yes, Probably	21.71 (5.63)	22 (27)	25.65 (6.48)	26 (32)	**t = 4.878**	**<.0001***	**D = 0.649**
	3. No, Probably Not or Definitely Not	5.30 (2.73)	5 (18)	7.91 (4.51)	7 (21)	**U = 4055**	**<.0001***	**r_{rb} = 0.365**

Table 1 T-test and Mann-Whitney Results Comparing VA and Non-VA Hospital Patient Satisfaction.

Note: * = Significant at the Bonferroni corrected $p < 0.017$ level; n = 113 VA and 113 non-VA hospitals included in all analyses except patient preferences† (n = 111 VA). Mean, Standard Devation (*SD*), Median, and Range presented as percentages.

using a non-parametric Mann-Whitney *U* test, due to either unequal variances or non-normally distributed data.

There was a significant difference in patient satisfaction between VA and Non-VA hospitals in all three response categories for each of the eight areas of care. The difference between VA hospital and non-VA hospitals for the most positive response option throughout all areas of interest was between 5–10% higher for VA (see mean percent of responses, Table 1 above). Conversely, non-VA hospitals received 2–6% higher mean percentage rates of response to both the medial and most negative options in all 16 remaining cases when compared to VA hospitals (see Table 1 above).

COMPARISON OF VA HOSPITAL PATIENT SATISFACTION BY REGION

Descriptive data and results of statistical tests for the comparison of VA hospital patient satisfaction scores

between different geographical regions are presented in Table 2 below. After grouping the patient satisfaction survey data into one of four regions (Northeast, Midwest, South, or West), the groups were assessed for normality of data distribution and homogeneity of variance. From this analysis we determined that nine out of the 24 total survey response options satisfied the requirements for parametric analysis, in which case a one-way ANOVA was used to compare groups. Conversely, 15 survey response options presented either non-normally distributed data and/or heterogeneity of variances and were analyzed using a non-parametric Kruskal-Wallis Test.

Out of the 24 total comparisons made, four were significant at the Bonferroni-corrected $p < 0.017$ level. All four of the significant results came out of regional comparisons of the most negative response option within the specific area of care delivery being analyzed. Specifically, significant effects of region were found for sometimes/never receiving help promptly (Question 3, Response 3; $F(3, 109) = 4.03$, $p = 0.009$, $\eta^2 = 0.010$), disagreeing/strongly disagreeing that patient preferences were taken into consideration (Question 5, Response 3; $F(3, 109) = 4.14$, $p = 0.008$, $\eta^2 = 0.104$), nurses sometimes/never communicating well (Question 1, Response 3; $\chi^2 = 10.54$, $df = 3$, $p = 0.015$, $\varepsilon^2 = 0.094$), and rooms and bathrooms sometimes/never being clean (Question 4, Response 3; $\chi^2 = 10.42$, $df = 3$, $p = 0.015$, $\varepsilon^2 = 0.093$).

While these significant results highlight the presence of a general regional effect on patient satisfaction scores, post-hoc comparisons (either Tukey HSD or non-parametric DSCF tests) provided further information on which specific regions were significantly different from one another. In all four instances of regional effect on satisfaction, the Southern region exhibited a significantly higher percentage of negative responses when compared with the Midwestern region (all $p < 0.05$).

DISCUSSION

KEY FINDINGS

Through an analysis of cross-sectional HCAHPS patient satisfaction survey data from October 2022, it was determined that hospitals within the US VA system provided a level of care that their patients were more satisfied with than participants who atteneded non-VA hospitals. Specifically, this primary analysis revealed that a higher percentage of patients chose positive survey responses for VA than non-VA hospitals regarding areas of care that included nurse and doctor communication, staff responsiveness, cleanliness, patient preference consideration, care transition, overall hospital rating, and likelihood of recommendation. Our secondary analysis found that VA hospital patient satisfaction was largely similar between different geographic regions within the United States, though in some areas of care the South was found to have more negative responses than the Midwest.

The results of our primary analysis are inconsistent with those published by Blay et al. (2017), who reported that non-VA hospitals produce significantly higher levels of patient satisfaction in several areas of care including nurse and physician communication, staff responsiveness, and likelihood of recommendation. Elsewhere, it has also been reported that VA hospitals receive overall ratings that are not significantly different from non-VA hospitals, and VA hospitals perform significantly worse in terms of likelihood of patient recommendation when compared to those that are non-VA (Eid et al., 2020). Contrary to both reports, the three response categories analyzed for each of the eight patient satisfaction questions in this study indicated VA hospitals received more positive survey responses, while non-VA hospitals received greater percentages of responses that were medial or negative.

One possible explanation for these contrasting results could be the recent efforts to improve care delivery within the VA system catalyzed by research highlighting deficiencies in several aspects of VA health care delivery, including care quality and access (Blay et al., 2017). These improvements to VA health care include, but are not limited to, the implementation of a new electronic health records (EHR) system, a recently launched website to improve access to VA care, as well as advancements in VA urgent care services (US Department of Veterans Affairs, 2019). In addition to the improvements in care, the amount of funding the VA has at their disposal has increased in recent years. According to an article on published by Disabled American Veterans , the VA's newly passed budget allocates "$119 billion [to veterans'] medical care (a 22% increase from 2022) … and nearly $4 billion" to fund medical benefits (Saintsing, 2023, para. 4). This is supported by official reports from the White House, which state that the VA medical care budget included $118.7 billion in 2023, with a further increased allocation of $121 billion expected for 2024 (The White House, 2023, para. 3). As a result, the state of VA patient satisfaction seems to have improved in recent years from worse (Blay et al., 2017), to equivocal (Eid et al., 2020), to better (results from this study) than non-VA hospitals. This suggests that the attention and investments made to improve VA patient care have been successful.

With respect to our secondary analysis, other reports of VA hospital satisfaction comparisons between different geographic locations in the US are scarce. One study addressed this question briefly, detailing that there is high variation in satisfaction, performance, and quality between

HCAHPS SURVEY QUESTION	RESPONSE	NORTHEAST		MIDWEST		SOUTH		WEST		TEST STAT-ISTIC	P-VALUE (EFFECT SIZE)
		MEAN (SD)	*MEDIAN (RANGE)*	*MEAN (SD)*	*MEDIAN (RANGE)*	*MEAN (SD)*	*MEDIAN (RANGE)*	*MEAN (SD)*	*MEDIAN (RANGE)*		
1. Nurses Communicated Well	1. Always	81.58 (4)	82 (15)	81.50 (4.60)	82 (18)	76.69 (6.19	79 (24)	80.43 (3.33)	81 (14)	$\chi2 = 2.98$	0.3948
	2. Usually	14.26 (2.51)	15 (9)	14.96 (3.35)	15 (14)	14.91 (4.14)	15 (17)	15.52 (1.94)	16 (9)	$\chi2 = 1.44$	0.6954
	3. Sometimes or Never	4.16 (2.03)	4 (9)	3.54 (1.79)	3 (7)	5.40 (2.59)	5 (10)	4.05 (1.69)	4 (5)	$\chi2 = 10.54$	**0.0145* (ε^2 = 0.094)**
2. Doctors Communicated Well	1. Always	81.74 (3.69)	82 (14)	82.00 (3.82)	81 (17)	81.80 (4.42)	81 (19)	80.90 (2.53)	81 (9)	F = 0.36	0.7808
	2. Usually	13.89 (2.60)	14 (11)	14.39 (2.74)	15 (12)	13.56 (3.25)	13 (15)	14.81 (1.72)	15 (7)	$\chi2 = 4.25$	0.2360
	3. Sometimes or Never	4.37 (1.57)	5 (5)	3.61 (1.79)	4 (7)	4.64 (1.77)	4 (7)	4.29 (1.59)	4 (5)	$\chi2 = 5.38$	0.1460
3. Help Was Received Promptly	1. Always	68.42 (6.06)	70 (24)	69.54 (8.77)	69 (42)	66.96 (8.26)	66 (33)	68.81 (6.36)	69 (27)	F = 0.71	0.5469
	2. Usually	21.32 (3.48)	22 (15)	22.79 (6.56)	24 (37)	22.04 (4.58)	22 (19)	22.81 (3.30)	23 (15)	$\chi2 = 2.52$	0.4713
	3. Sometimes or Never	10.26 (4.24)	9 (15)	7.68 (4.00)	7 (17)	11.00 (4.90)	11 (20)	8.38 (3.69)	8 (14)	F = 4.03	**0.0093* (η^2 = 0.010)**
4. Room and Bathroom Were Clean	1. Always	74.21 (7.32)	74 (24)	76.46 (6.57)	75 (23)	71.64 (6.75)	72 (27)	73.62 (4.98)	74 (20)	$\chi2 = 6.48$	0.0904
	2. Usually	17.16 (4.83)	19 (17)	16.36 (4.42)	18 (16)	18.27 (3.89)	19 (16)	17.81 (2.91)	18 (12)	$\chi2 = 2.50$	0.4758
	3. Sometimes or Never	8.63 (3.04)	9 (10)	7.18 (2.93)	8 (10)	10.09 (3.62)	9 (16)	8.57 (2.54)	8 (8)	$\chi2 = 10.42$	**0.0153* (ε^2 = 0.093)**
5. Patient Preferences Were Taken Into Consideration†	1. Strongly Agree	46.44 (4.83)	46 (18)	49.78 (6.70)	48 (25)	47.27 (6.03)	48 (25)	47.81 (4.34)	48 (13)	F = 1.52	0.2127
	2. Agree	45.33 (3.22)	45.5 (12)	44.11 (5.62)	45 (21)	44.31 (4.35)	44 (17)	44.33 (2.85)	44 (9)	$\chi2 = 1.10$	0.7777
	3. Disagree or Strongly Disagree	8.22 (2.71)	8 (10)	6.11 (2.31)	6 (8)	8.42 (3.25)	8 (18)	7.86 (2.31)	8 (8)	F = 4.14	**0.0081* (η^2 = 0.104)**
6. Transition Of Care Was Understood Upon Discharge	1. Strongly Agree	56.84 (4.76)	56 (20)	58.00 (6.12)	58 (29)	56.36 (5.15)	57 (20)	56.76 (3.42)	57 (12)	F = 0.61	0.6076
	2. Agree	37.37 (3.52)	38 (14)	37.07 (5.20)	38 (23)	37.58 (3.79)	38 (15)	37.43 (2.34)	38 (9)	$\chi2 = 0.07$	0.9955
	3. Disagree or Strongly Disagree	5.79 (1.87)	6 (7)	4.93 (1.92)	5 (6)	6.07 (2.23)	6 (11)	5.81 (1.72)	6 (6)	$\chi2 = 4.93$	0.1766
7. Hospital Rating	1. 9–10 (High)	74.58 (6.04)	75 (20)	75.46 (7.46)	75.5 (32)	72.78 (7.50)	72 (32)	75.24 (4.64)	74 (16)	F = 1.16	0.3303
	2. 7–8 (Medium)	18.42 (4.09)	18 (13)	18.29 (5.47)	17.5 (26)	19.00 (4.40)	19 (20)	18.19 (3.06)	18 (11)	F = 0.23	0.8702
	3. 0–6 (Low)	7.00 (2.52)	6 (8)	6.25 (3.11)	6 (13)	8.22 (4.17)	8 (21)	6.57 (2.48)	6 (9)	$\chi2 = 4.67$	0.1976
8. Would You Recommend This Hospital?	1. Yes, Definitely	72.53 (7.65)	74 (23)	74.39 (8.08)	73.5 (30)	71.16 (8.17)	71 (37)	75.48 (4.97)	75 (17)	F = 1.98	0.1209
	2. Yes, Probably	22.11 (5.63)	21 (17)	21.11 (6.24)	22.5 (24)	22.96 (5.77)	23 (27)	19.48 (3.71)	19 (14)	$\chi2 = 6.26$	0.0996
	3. No, Probably Not or Definitely Not	5.37 (2.19)	5 (8)	4.50 (2.32)	4 (9)	5.89 (3.35)	5 (18)	5.05 (1.91)	5 (7)	$\chi2 = 3.81$	0.2822

Table 2 One-Way ANOVA and Kruskal-Wallis Results Comparing VA Hospital Patient Satisfaction by Region.

Note: ***** = Significant at the Bonferroni corrected $p < 0.017$ level. 113 VA and 113 Non-VA Hospitals included in all analyses except Patient Preferences† ($n = 111$ VA). Mean, Standard Deviation (*SD*), Median, and Range presented as percentages.

the different VA facilities they examined (Anhang Price et al., 2018). However, without specifically grouping hospitals by location, it is hard to resolve these findings with those presented here. In any case, while the report from Anhang Price et al. (2018) suggested there is some variation in VA patient satisfaction, the data presented in this study suggested it does not vary extensively between geographic regions of the US. This finding may also be a direct result of the recent attention and investment made to improving VA health care satisfaction, however, with limited prior reports to compare against, it is difficult to conclude this with confidence. We do, however, find a relatively consistent trend for the Southern region to receive more negative responses than the Midwest, which may warrant further investigation.

The South has a history of generally lower quality health care, and that trend holds true to this day. According to a recent report from the Commonwealth Fund, the five worst states in America for several health-related outcomes and accessibility categories (access, quality, cost, etc.) all lie in the southern US (The Commonwealth Fund, 2023). All five states highlighted by this report (Mississippi, West Virginia, Texas, Oklahoma, Arkansas), are also included in the top 10 most impoverished states rankings from US News, further suggesting a correlation between locational economic status and quality/satisfaction of health care (Gilligan, 2023).

LIMITATIONS

This research included several limitations that should be taken into consideration. First, 24 out of the 137 US VA hospitals did not report survey data during the collection period in October 2022, limiting our analyses to 113 VA hospitals. Furthermore, it should be noted that Alaska, Hawaii, and New Hampshire did not have hospitals within the Veterans Health Administration System at the time this research was conducted; therefore, these three states were not represented in either analysis. Despite these limitations, we still feel that the number of VA hospitals included should provide a comprehensive overview of VA patient satisfaction across the US.

An additional limitation within this research was that CMS data was provided as a percentage of participants who selected each of the three response categories. Although this effectively controls for the different number of participants who responded to the survey at each hospital, it does mean that the percentage value for one response option inevitably affects that of the other two for a given question. As a result, a significant difference between VA and non-VA hospitals detected for one response level may result in an additional significant difference for one or both other response options. Given that we could not control how the data was collected and published, this was an unavoidable feature of our analysis.

FUTURE RESEARCH

Future research should compare VA patient satisfaction by Veterans Integrated Services Network (VISN) or by state for a finer grade analysis than the regional approach in this study. While the post-hoc comparisons performed in our secondary analysis identified limited differences between four extremely broad regional groups, it would be more informative to reveal whether more narrowed groupings or specific US states are skewing regional averages, highlighting more specific areas where greater attention is needed to improve VA patient care.

Future studies should also stratify patient survey results by the type of care they are receiving (i.e., for certain conditions/reasons for visitation) providing insight into how the providers and staff being evaluated are delivering care for specific diseases or procedures. Again, this would provide a finer grade analysis of patient satisfaction that could prove useful to administrators and clinicians when improving particular departments or care units. Finally, VA patient satisfaction should be monitored over more longitudinal timescales to help incorporate the impact of the VA's budget increases and other efforts to improve patient care. There are limited findings within the literature regarding budgetary changes in health care over time and how they affect patient satisfaction. However, one study from Akinleye et al. (2019) reported that a hospital's financial performance and stability are associated with increased patient satisfaction, leading us to believe that there could be a positive correlation between funding and satisfaction at the broader system level (Akinleye et al, 2019). Further analysis of the impact of these budgetary changes on VA patient satisfaction may reveal a significant relationship between funding and satisfaction/performance within the realm of veterans health care.

Finally, research involving the effect of COVID on patient satisfaction would provide insight into how a global pandemic changes the care delivered in hospitals and how satisfied this care leaves patients. Results of a study analyzing COVID's effects on patient satisfaction could highlight areas of care delivery that either improved or worsened, from a point in time before the pandemic to a point of significant COVID case number decline. Importantly, the HCAHPS data analyzed in this study were collected in October 2022 when vaccinations had been developed and widely distributed, so the immediate impact of the pandemic on our findings may have been minimized. Nevertheless, further research into the long-term effects of the COVID pandemic on patient satisfaction will be

important to motivate quality improvement initiatives and correct any areas that exhibited decline.

RECOMMENDATIONS

Despite previous concerns regarding the quality of VA hospitals, the results of this study showed that these facilities are leaving their patients significantly more satisfied than those of non-VA hospitals. Furthermore, the results of this study should be used to pinpoint certain areas of care where VA and non-VA hospitals need to improve. While this appears to be a more pressing issue for non-VA facilities, given their lower overall satisfaction reports, VA hospitals still have a need for further improvement in certain areas of care delivery which we found to be lowest overall, such as patient preference consideration. Importantly, both VA and non-VA hospitals need to compare the satisfaction scores they receive to the calculated group averages reported here for their type of facility. Once inadequate areas of care delivery are identified through comparison with our data, further action can be taken to improve and leave patients with greater satisfaction.

CONCLUSION

The main goal of this study was to compare patient satisfaction of health care quality between VA and non-VA hospitals, with a secondary goal of investigating potential variation in VA patient satisfaction by region within the US. Based on HCAHPS patient satisfaction survey results from October 2022, we concluded that patients are more satisfied with care received in VA hospitals compared to that of non-VA hospitals. Also, we found limited variation in VA patient satisfaction when compared between geographic regions. Recent increases in VA funding and calls for higher quality care may have contributed to these findings and could explain why past research has reported contrasting results. However, further studies examining these potentially influential factors alongside longitudinal survey data could shed light on exactly what forces are driving the progression of VA health care quality and higher levels of patient satisfaction. While these results show promising improvement in veterans' health care quality compared to those of the past, it is critical to continuously monitor this over time to ensure that advocation and support for quality veterans' health care does not waiver.

ACKNOWLEDGEMENTS

The faculty and staff in the department of public health sciences at the Pennsylvania State University College of Medicine provided critical guidance and support throughout all stages of research.

FUNDING INFORMATION

No funding was received when conducting this study.

COMPETING INTERESTS

The authors have no competing interests to declare.

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TO CITE THIS ARTICLE:
Sellers, J. A., & Kitchen, N. M. (2023). National Comparison of Veterans and Non-veterans Medical Center Patient Satisfaction Ratings: An HCAHPS Survey Data Analysis. *Journal of Veterans Studies,* 9(3), pp. 89–97. DOI: https://doi.org/10.21061/jvs.v9i3.451

Submitted: 05 May 2023 **Accepted:** 13 September 2023 **Published:** 15 December 2023