

An Analysis of Factors Affecting Satisfaction in Commissioned Veteran Hospitals: Focusing on Region, Hospital Type, and Number of Respondents

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ARTICLE INFO	ABSTRACT
Received: 25 Dec 2024	This study analyzes the factors influencing overall satisfaction among veteran patients based on a survey conducted at 405 commissioned hospitals across South Korea. The dependent variable was the average score of eight satisfaction categories: Usefulness, Responsiveness, Expertise, Empathy, Convenience, Psychological Comfort, Trust, and Public Interest. Independent variables included jurisdictional region, type of medical institution, and number of survey respondents. A multiple linear regression analysis was conducted. Results showed that hospitals in the Daegu region had significantly higher satisfaction compared to the reference region (Central), with a coefficient of +0.1723 ($p = 0.0004$). Furthermore, tertiary general hospitals recorded higher satisfaction levels than other institution types, while clinics showed lower average scores with greater variability. Although the number of respondents impacted the reliability of the results, its influence on satisfaction scores was statistically limited. These findings quantitatively demonstrate that regional infrastructure and institutional structure are critical factors influencing patient satisfaction. The study suggests the need for region-specific performance monitoring systems and standardized care protocols in future healthcare policy design. ¹ Keywords: Veteran healthcare, satisfaction analysis, regression analysis, regional disparity, commissioned hospitals.
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INTRODUCTION

In 2024, a satisfaction survey was conducted targeting 405 commissioned hospitals across South Korea that provide medical services to veterans.¹ The survey assessed veterans' satisfaction across eight categories—Usefulness, Responsiveness, Expertise, Empathy, Convenience, Psychological Comfort, Trust, and Public Interest—using a 5-point scale.^{2,3,4,5} Overall, the average score for all items exceeded 4.4 points, indicating a high level of satisfaction with the overall quality of services provided by these hospitals. In particular, 'Expertise' (4.61 points) and 'Convenience' (4.50 points) recorded the highest average scores, suggesting that patients positively perceive the professionalism of the medical staff and the ease of accessing medical care. Conversely, 'Public Interest' (4.46 points) received the lowest average score among the categories, though the difference was minimal and still reflected a relatively high level of satisfaction. The standard deviation for all items was approximately 0.3, indicating that while there were some differences among hospitals, the overall distribution of scores was stable and consistent.

In conclusion, this survey of 405 institutions shows that overall satisfaction with medical services remains very high. In particular, patients showed strong satisfaction with the professionalism of healthcare providers, the convenience of hospital use, and the attitude of medical staff.

SUBJECTS AND METHODS

A regression analysis was conducted on 405 commissioned hospitals for veterans to identify which factors significantly influence satisfaction. The first independent variable, Region, was treated as a categorical variable and dummy-coded. The second independent variable, Hospital Type, was also treated as a categorical variable. The third independent variable, Respondents, was treated as a continuous variable. The goal of this analysis was to examine the extent to which these factors affect eight dimensions of satisfaction—Usefulness, Responsiveness, Expertise, Empathy, Convenience, Psychological Comfort, Trust, and Public Interest.

The research procedure is depicted in Figure 1.

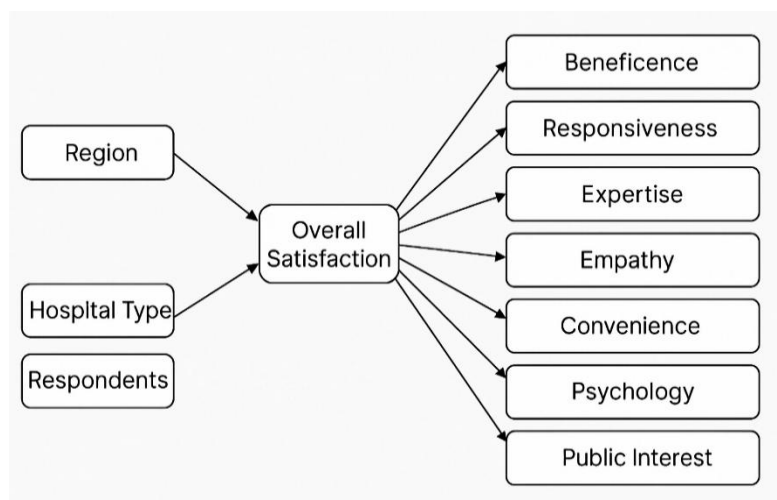


Figure 1. Flow chart

Descriptive Statistics

This report summarizes the descriptive statistics of satisfaction scores collected from veteran patients at commissioned hospitals across South Korea. The scores are based on 8 dimensions of service quality, each rated on a 5-point scale.^{8,9}

Table 1. Summary of the Commissioned Veterans Hospital Satisfaction Survey Results (N=405)

Category	Mean	Std Dev	Min	25%	Median	Max
Usefulness	4.46	0.31	3.17	4.31	4.5	5.0
Responsiveness	4.46	0.31	3.17	4.31	4.5	5.0
Expertise	4.61	0.33	2.67	4.46	4.67	5.33
Empathy	4.47	0.31	3.0	4.31	4.5	5.0
Convenience	4.5	0.3	3.0	4.33	4.5	5.0
Psychological	4.48	0.31	3.0	4.31	4.5	5.0

Trust	4.47	0.31	3.0	4.31	4.5	5.0
Public	4.43	0.32	3.17	4.2	4.5	5.0
Overall Satisfaction	4.49	0.28	3.02	4.33	4.52	5.0

Analysis of Satisfaction Differences by Jurisdiction

The commissioned veteran healthcare delivery system in Korea is divided into six regional jurisdictions (Central, Daegu, Daejeon, Gwangju, Incheon, and Busan). As medical services are provided based on these regions, analyzing satisfaction differences by jurisdiction holds significant value in managing and evaluating the effectiveness of the system.

To examine these differences, a one-way ANOVA analysis was conducted. The Levene's test for homogeneity of variance resulted in $p = 0.331$, indicating that the assumption of equal variances was satisfied. The ANOVA analysis showed a statistically significant difference among regions, with a p -value of 0.0141 ($p < 0.05$). This result suggests that satisfaction levels vary meaningfully across different jurisdictional regions.

In conclusion, there was a statistically significant difference in overall satisfaction across the jurisdictional regions. To identify which regions showed relatively higher or lower levels of satisfaction, a comparison of means and visualizations were conducted as follows.

Overall Satisfaction By Jurisdiction Region in Figure 2.

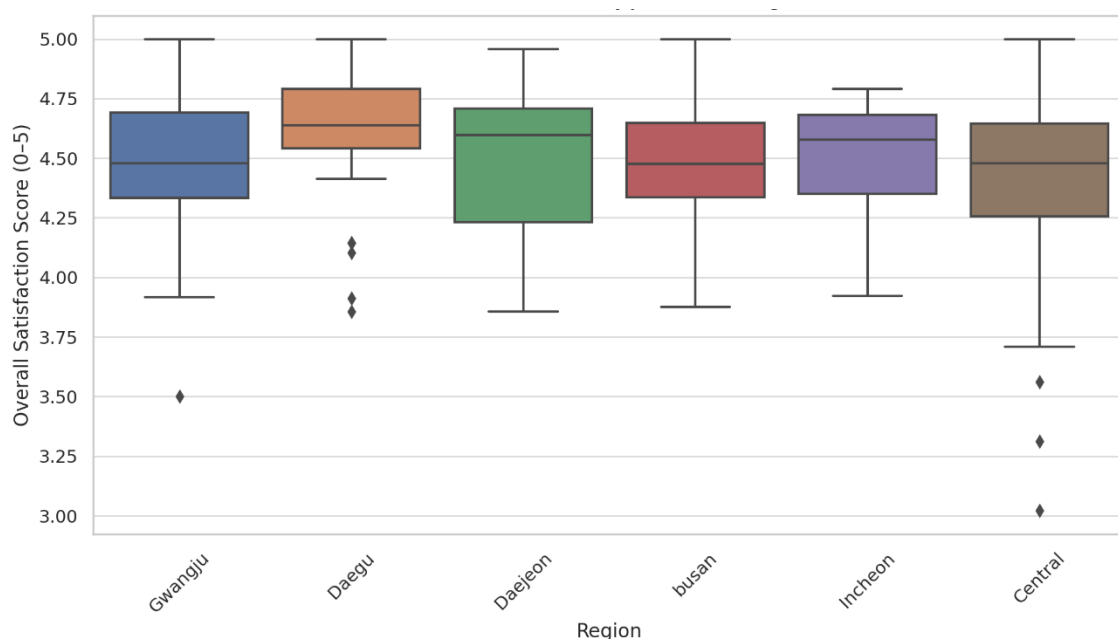


Figure 2. Analysis Results

Daegu and Incheon regions generally maintained high levels of satisfaction, with both the mean and median scores being relatively high and showing low variance. In contrast, some hospitals in the Central region recorded lower satisfaction scores, placing the region in the lower tier. The Gwangju, Daejeon, and Busan regions were positioned in the middle range, with a few outliers observed.

Analysis of Overall Satisfaction by Type of Medical Institution

The analysis of overall satisfaction by type of medical institution revealed distinct patterns in how

veterans perceived service quality depending on where they received care.

Tertiary general hospitals generally recorded the highest average satisfaction scores, with relatively stable and narrow score distributions. This suggests that these institutions, which typically offer a higher level of medical expertise and infrastructure, are consistently meeting the expectations of veteran patients.

General hospitals also showed relatively high levels of satisfaction. However, they exhibited the widest range of variation among all hospital types. While some general hospitals received excellent evaluations, others were rated significantly lower, indicating a need for better quality control and consistency across institutions within this category.

Hospitals presented a more balanced distribution, with average satisfaction scores falling in the mid-range. These institutions appear to offer relatively consistent service levels but may lack the specialized capabilities of tertiary hospitals.

Clinics, on the other hand, tended to have the lowest average satisfaction scores overall. However, some clinics performed quite well, receiving high ratings. This suggests substantial variability within this category, likely influenced by individual provider capacity, facilities, and localized service approaches.

In summary, this analysis indicates that the type of medical institution plays a significant role in shaping patient satisfaction. Policymakers and administrators should take these differences into account, especially when allocating resources or evaluating institutional performance. Improving the service quality of lower-performing general hospitals and clinics could lead to a more balanced and effective veteran healthcare delivery system.

Overall Satisfaction By Type Of Medical Institution in Figure 2.

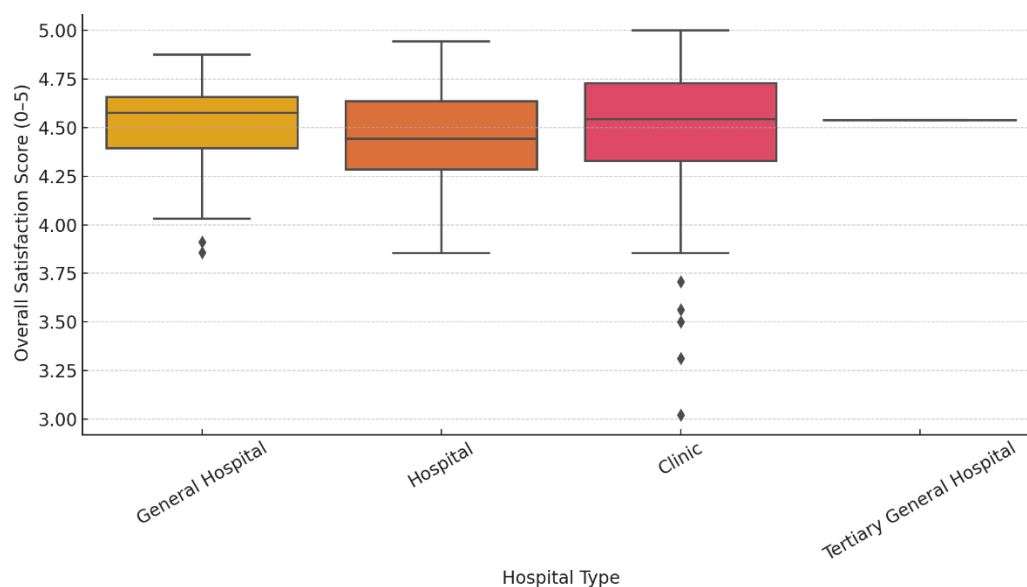


Figure 2. Analysis Results

Interpretation and Policy Implications of Hospital Type Comparison

The statistical analysis revealed clear differences in satisfaction levels based on the type of medical institution. Tertiary general hospitals consistently showed high average satisfaction scores with relatively low variation, indicating a strong level of trust and consistency in their service delivery. In contrast, general hospitals demonstrated the widest variability in scores, suggesting uneven service

quality across institutions within this category. Clinics, while more accessible, generally received lower satisfaction scores, though some performed exceptionally well, pointing to considerable inconsistency in patient experiences.

These findings suggest that the type of medical institution significantly influences patient satisfaction, and the disparities highlight key areas for improvement.

From a policy perspective, several implications emerge: First, the consistent performance of tertiary hospitals supports the strategic expansion or greater utilization of these institutions within the veteran healthcare system. Second, the high variability within general hospitals calls for enhanced monitoring, standardization of care, and targeted quality improvement initiatives. Lastly, the mixed performance of clinics implies a need to develop guidelines and support structures to ensure a baseline quality of care across all local-level providers.

In conclusion, differentiating service strategies by hospital type will be crucial to building a more equitable and reliable veteran healthcare delivery system.

Overall Satisfaction By Number Of Survey Respondents in Figure 3.

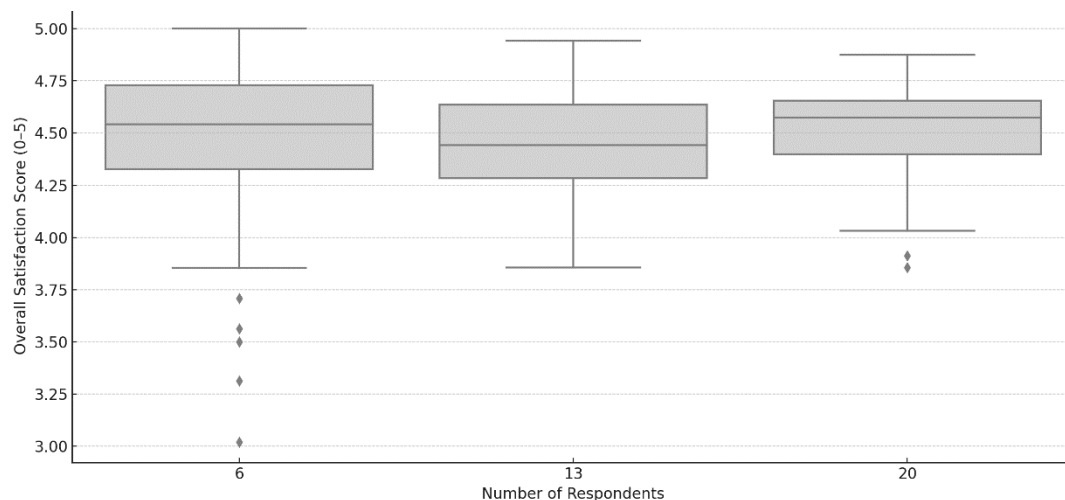


Figure 3. Analysis Results

Interpretation and Policy Implications of Respondent-Based Satisfaction Analysis

The analysis of overall satisfaction by the number of survey respondents revealed notable patterns related to data reliability and representativeness. While there was no clear linear correlation between the number of respondents and the average satisfaction score, a distinct trend was observed: institutions with fewer respondents exhibited a wider range of satisfaction scores, often showing extreme highs or lows. In contrast, hospitals with 15 or more respondents tended to have more stable and centralized satisfaction scores, suggesting that larger sample sizes may better reflect the actual quality of service.

This variability implies that small respondent groups are more susceptible to bias or unrepresentative results, either due to isolated experiences or chance variation. Such outcomes may mislead performance evaluations if taken at face value.

From a policy standpoint, these findings point to the need for: Establishing a minimum respondent threshold to ensure statistical reliability in satisfaction surveys.

Applying weighting adjustments in satisfaction evaluations to reflect the size and robustness of the respondent base.

Conducting follow-up qualitative assessments for institutions with very low participation to verify and contextualize their scores.

In summary, ensuring sufficient and balanced survey participation is essential not only for accurate evaluation but also for fair and effective policy decisions regarding healthcare service improvements for veterans.

Region-Wise Regression Coefficients

The following table presents the regression coefficients for each region, based on a multiple linear regression model analyzing the impact of jurisdiction on overall satisfaction (reference group: Central region).

Table 2. Summary of the Interpretation of Regional Regression Results (N=405)

Variable	Coef.	Std.Err.	t	P> t	[0.025	0.975]
C(Region)[T.Daegu]	0.1723	0.0479	3.5991	0.0004	0.0782	0.2665
C(Region)[T.Daejeon]	0.0754	0.0467	1.6152	0.1071	-0.0164	0.1671
C(Region)[T.Gwangju]	0.0464	0.0391	1.1867	0.2361	-0.0305	0.1234
C(Region)[T.Incheon]	0.042	0.0709	0.592	0.5542	-0.0974	0.1813
C(Region)[T.busan]	0.0433	0.0422	1.0276	0.3047	-0.0396	0.1263

Based on the regression analysis, when compared to the reference region, Central, the Daegu region showed an average overall satisfaction score that was 0.17 points higher, and this difference was statistically significant ($p = 0.0004$). In contrast, other regions—Daejeon, Gwangju, Incheon, and Busan—also had slightly higher average scores than Central, but the differences were not statistically significant ($p > 0.05$). Therefore, Daegu is the only region that demonstrates a clear and statistically meaningful effect on satisfaction.

The fact that Daegu is the only region with a statistically significant increase in satisfaction suggests that the quality of commissioned hospital services in this area may be more consistent or systematically managed. As such, Daegu could serve as a benchmark model for improving veteran healthcare delivery in other regions.

On the other hand, since the other regions did not show significant differences despite slightly higher means, this implies that individual hospital characteristics or the type of institution may have a greater influence on satisfaction than the region itself.

RESULTS

Key Drivers of Satisfaction in Commissioned Veteran Healthcare Services

Based on a regression analysis of 405 commissioned hospitals, the most significant factors influencing overall satisfaction in veteran healthcare services were found to be the jurisdictional region (particularly the Daegu region) and the type of medical institution.

Hospitals in the Daegu region reported an overall satisfaction score that was 0.17 points higher than the reference region (Central), and this difference was statistically significant ($p = 0.0004$). This finding suggests that the healthcare delivery system in Daegu may be more structured and consistently managed compared to other regions.

The type of medical institution was also a critical factor. Tertiary general hospitals tended to receive higher satisfaction ratings, while clinics showed relatively lower scores. This indicates that patients'

experiences vary significantly based on the perceived professionalism, accessibility, and reliability of the institution they visited. In contrast, the number of survey respondents had a more limited impact. While it affects the reliability of the data, it was not a strong predictor of satisfaction levels on its own.

In conclusion, the regional context and institutional characteristics were the strongest predictors of satisfaction. These findings highlight the importance of targeting regional disparities and standardizing service quality by institution type when planning future policy improvements in veteran healthcare services.

DISCUSSION & CONCLUSION

Integrated Policy Proposal for Improving Veteran Healthcare Satisfaction

In order to improve satisfaction within the veteran healthcare delivery system, two key challenges must be addressed: reducing regional disparities in service quality and standardizing care across different types of medical institutions. The regression analysis showed that only the Daegu region had significantly higher satisfaction scores, indicating a potential imbalance in infrastructure and service delivery between regions. Additionally, satisfaction varied significantly depending on the type of institution, highlighting the urgent need to strengthen the service quality of clinics and smaller hospitals.

Going forward, discussions should move beyond merely increasing the number of hospitals and instead focus on how to maintain balanced service quality across regions, and what structural mechanisms are needed to ensure that all institutions meet a minimum standard of care. In particular, the development of objective evaluation indicators, ongoing performance monitoring, and regional cooperation frameworks will be essential to achieving equitable and effective service delivery.

To this end, several policy recommendations can be proposed. First, the creation of region-based performance indicators will allow for measurable comparisons of healthcare service levels, guiding resource allocation and administrative decisions. Second, the establishment of standardized clinical protocols by institution type will help ensure a baseline quality of care for all veterans while narrowing service disparities. Third, a performance-based evaluation and incentive system linked to satisfaction and service outcomes could drive continuous quality improvement. Finally, regional collaboration platforms led by tertiary general hospitals can support smaller institutions, promoting shared growth and elevating overall service quality in each jurisdiction. ^{6,7,10}

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