

ORIGINAL RESEARCH ARTICLE

# Intersection of Patient Satisfaction, Expense Management, and Profitability at Washington State Hospitals

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**Keywords:** Patient Satisfaction, Expense Management, Hospital Profitability, Healthcare Administration

## ABSTRACT

**Objectives:** Explore relationships between hospital expense management, profitability, and patient satisfaction.

**Methods:** Hospital financial statement and patient satisfaction scores in Washington State were analyzed to identify financial approaches between hospitals with high and low patient satisfaction scores.

**Results:** Hospitals with high patient satisfaction scores invest significantly more in surgical services than do hospitals with lower scores. While surgical services are typically viewed as lucrative revenue streams for most hospitals, high-scoring hospitals' higher levels of investment in surgical services, and other areas linked to diagnosis and postoperative care, suggests that these hospitals are committed not just to generating revenue but also to enhancing patient outcomes and experiences. Hospitals with high patient satisfaction scores also invested more in data processing. Unlike areas in which increased spending is directly related to providing clinical services, data processing is part of an administrative domain can be considered a strategic move to leverage technology for better patient outcomes and experiences. All hospitals in the study spent similar amounts in some areas of hospital operations, including acute care, central services, laundry and linen, and in-service education. Yet, for hospitals with high patient satisfaction scores, these specific expenses correlate with profitability. This result suggests that although both sets of hospitals are incurring similar expenses, their returns on investments differ. Addition research is warranted to better understand the reasons for this disparity including internal differences in operational efficiencies, service quality, the internal built environment, and external factors such as payer mix and regional demographics.

**Originality/Value:** This study can support healthcare organization in developing a framework to optimize best practices around patient

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**What do we already know about this topic?**

The link between clinical care outcomes and patient satisfaction is well-documented: satisfied patients often experience better health outcomes and are more likely to recommend healthcare facilities. Patient satisfaction also affects a hospital's financial health. There is limited empirical research on the relationship between expense management and patient satisfaction in hospitals.

**What is the main contribution to Evidence-Based Practice from this article?**

Hospitals with high patient satisfaction scores invest more significantly in surgical services and data processing than those with lower scores. This indicates a commitment to enhancing patient outcomes and experiences beyond generating revenue. While all hospitals spend similarly on certain operational areas, those with higher patient satisfaction scores see better profitability, suggesting differences in returns on investments.

**What are this research's implications towards health policy?**

Hospitals should strategically allocate resources to areas such as surgical services and data processing to enhance patient satisfaction and profitability. Adopting a focused expense management strategy can optimize both financial performance and patient satisfaction.

**Authors' Contributions Statement:**

SC: Acquired and organized research data, designed the research methodology. AB: Performed data analysis and contributed to the writing of the paper. All authors read and approved the final version of the manuscript.

## Introduction and Literature Review

The healthcare industry has been undergoing a paradigm shift, with a greater focus being placed on patient-centric care (Al-Abri & Al-Balushi, 2014). This approach places the patient at the heart of healthcare delivery, emphasizing their needs, preferences, and overall experience (Sreenivas & Babu, 2012).

Consequently, healthcare organizations are allocating substantial resources to efforts to improve patient satisfaction metrics (Beattie et al., 2015; Kennedy, Tevis, & Kent, 2014).

The nexus between clinical care outcomes and patient satisfaction has long been documented. Myriad studies, including those by Bjertnaes, Sjetne, and Iversen (2012) and Kane, Maciejewski, and Finch (1997), have corroborated this association. When patients are content with the care they receive, it not only bodes well for their health outcomes but also makes them more likely to be ambassadors and advocates of the healthcare system: satisfied patients are more inclined to vouch for a healthcare facility to peers and acquaintances (Chandra, Ward, & Mohammadnezhad, 2019; Ivany & Lane, 2020).

Consequently, patient satisfaction has profound implications for a hospital's financial health. Andani, Nyorong, and Amirah (2021) explained that dwindling customer satisfaction can lead to a decline in hospital visits, thereby affecting the institution's revenue stream and overall profitability. Ramli (2019) found a correlation between hospital patient satisfaction and loyalty, akin to the correlation between customer satisfaction and loyalty observed in other industries. This loyalty results in repeat visits to a hospital and in the hospital having a positive reputation (Asnawi et al., 2019). Likewise, Adelia, Utami, and Wibowo (2023) and Hakim (2021) found that customer satisfaction cultivates loyalty, which leads to repeat business and positive word of mouth, both of which are catalysts for profitability. Profitability is not solely a result of revenue; profitability requires a delicate balance between income and expenditures. For hospitals, both the revenue side and the expenditure elements of the equation are fraught with challenges. A balance can be difficult to achieve because of factors such as uncontrollable and downward-sloping

reimbursements, highly variable and rising labor costs, and high-cost fixed assets. Despite challenges on both sides of the profit and loss equation, costs are particularly challenging. Amusawi, Almagtome, and Shaker (2019) discussed the historical and contemporary significance of costs in healthcare and asserted they are the primary factor in profitability. The healthcare industry has been experiencing a surge in expenses, which is out of step with funding levels from insurance and governmental entities (Gaffney & Michelson, 2023). With competition growing and profit margins being squeezed, it is imperative for healthcare providers to focus more on cost-containment strategies (Enck, 2001). A further challenge is the need to make investments in the built environment that improve patient satisfaction. The built environment is highly correlated with patient satisfaction; in particular, visual factors (e.g., natural lighting, views of nature, and interior decorations), acoustic factors (e.g., noise, music, and natural sounds), and thermal factors (e.g., temperature, humidity, and ventilation) correlate with patient satisfaction (MacAllister, Zimring, & Ryherd, 2016; Shen et al., 2023). Investing in these aspects of the built environment will have a return if they result in the anticipated increase in patient satisfaction. Unfortunately, there is limited empirical research on the relationship between expense management and patient satisfaction in hospitals. The purpose of this research was to explore relationships between hospital expense management, profitability, and patient satisfaction to develop a framework that healthcare organizations can use to develop and optimize best practices.

### Methodology

Each U.S. state's department of health website was searched for hospital financial statements.

The following key words were used to conduct the search: financial, income, balance sheet, statement, and annual report. California, Connecticut, Delaware, New Jersey, Oregon, Washington, and West Virginia reported hospital financial information. Washington was the only state to provide detailed revenue and cost account information along with use metrics (admissions, beds, area, patient days, etc.) (Washington State Department of Health, 2021). Revenue and expense data were analyzed to understand the strength of the correlation between hospital profitability and patient satisfaction scores. Additionally, the study involved comparing the revenue and cost data of hospitals with lower patient satisfaction scores and of hospitals with higher patient satisfaction scores, using independent-sample t-tests, to explore the financial approaches of these two groups of hospitals. Overall patient satisfaction scores for each hospital in Washington were obtained from the results of the Hospital Consumer Assessment of Healthcare Providers and Systems survey (HCAHPS, n.d.). This survey is sponsored by the Centers for Medicare and Medicaid Services and obtains patients' perspectives of the hospital experience. Quarterly, the survey is sent to a random sample of adults who were discharged from a hospital 2–42 days prior, and the results are publicly reported at <https://www.medicare.gov/care-compare/>. For a hospital's results to be publicly reported, at least 25 surveys for the hospital must be completed each quarter. The HCAHPS survey measures the overall patient experience through two items: (1) the patient's overall rating of the hospital (on a scale of 0–10, with 0 = lowest and 10 = highest) and (2) the patient's willingness to recommend the hospital (yes or no response); the survey results indicate the percentage of patients who reported "yes." Of the 84 licensed hospitals that provided 2021

financial reports to the Washington State Department of Health, 51 also published the overall patient satisfaction scores from HCAHPS, and only these hospitals' data were included in this study. Two of these hospitals were removed from the study because they had profits twenty times higher than the average.

#### Data Analysis

The hospitals (N = 49) in this study had an average of 508,306 gross square feet, 173 available beds, 8,395 annual admissions, and 46,332 annual patient days (Table 1). The average overall patient satisfaction score was

68%; the range was 50–84%. The first quartile of hospitals had scores  $\leq 62\%$  (n = 13). The other three quartiles of hospitals had scores  $> 62\%$  (n = 36); these three quartiles of hospitals also had higher profits than the hospitals in the lowest quartile: \$1,061,689 compared to –\$3,405,591 (Table 2). The results of using Spearman's correlation to measure the relationship between ordinal and continuous variables indicates that overall hospital patient satisfaction does not have a statistically significant correlation with total revenue (rs = .273, p = .059), total expenses (rs = –.273, p = .059), or profit (rs = .522, p = .094).

Table 1 Average Hospital Size, Number of Beds, Annual Admissions, and Annual Patient Days

| Gross square feet | Available beds | Annual admissions | Annual patient days |
|-------------------|----------------|-------------------|---------------------|
| 567,400           | 190            | 9,100             | 51,100              |

Table 2 Average Hospital Operating Expense, Revenue, and Profit, by Overall Patient Satisfaction Quartile

| Overall patient satisfaction quartile | Operating expense | Revenue       | Profit        | Profit margin |
|---------------------------------------|-------------------|---------------|---------------|---------------|
| Q1 (lowest)                           | (\$235,694,178)   | \$232,288,587 | (\$3,405,591) | (1.7%)        |
| Q2–Q4                                 | (\$462,023,251)   | \$463,084,940 | \$1,061,689   | 1.9%          |

Hospital profitability does have a statistically significant association with specific revenue and cost accounts. Of the individual hospital revenue accounts (N = 80), none have at least a moderate correlation with profit at  $r > .3$ ,  $p < .05$  (Cohen, 1988) except for dialysis ( $r = -.48$ ), which has a moderately negative association with hospital profit. Several of the

25 hospital cost accounts have at least a moderate correlation with profit at  $r > .3$ ,  $p < .05$ : acute care, central services, laundry and linen, and in-service education (Table 3). Interestingly, these correlations do not exist at hospitals with low patient satisfaction, but spending levels are similar regardless of patient satisfaction levels.

Table 3 Hospital Cost Accounts, Correlation to Profit, and Average Portion of Total Expenses, by Overall Patient Satisfaction Quartile

| Cost account         | Q1 correlation | Q2–Q4 correlation | Q1 avg. portion of total expenses | Q2–Q4 avg. portion of total expenses |
|----------------------|----------------|-------------------|-----------------------------------|--------------------------------------|
| Acute care           | None           | .39               | 7.0%                              | 6.6%                                 |
| Central services     | None           | .37               | 0.9%                              | 1.3%                                 |
| Laundry and linen    | None           | .61               | 0.1%                              | 0.1%                                 |
| In-service education | None           | .54               | 0.2%                              | 0.3%                                 |

The cost account levels of hospitals with low overall patient satisfaction scores and high overall patient satisfaction scores were compared to explore possible differences in spending approaches; for fair comparisons, costs were adjusted per patient day (Table 4). It is noteworthy that hospitals with high overall patient satisfaction spend significantly more on the following clinical service areas: surgical services ( $t = -2.904$ ,  $p = .006$ ), physical therapy ( $t = -2.593$ ,  $p = .013$ ), electrodiagnosis ( $t = -$

$2.204$ ,  $p = .033$ ), recovery rooms ( $t = -2.102$ ,  $p = .043$ ), and magnetic resonance imaging ( $t = -2.482$ ,  $p = .017$ ). These hospitals also spend significantly more on one administrative service area: data processing ( $t = -2.411$ ,  $p = .010$ ). The data suggest that though hospitals with high overall patient satisfaction scores spend more overall, the spending occurs in accounts that may have the greatest impact on patient satisfaction and/or hospital profitability.

Table 4 Cost Accounts with Significant Cost Differences per Patient Day, by Overall Patient Satisfaction Quartile

| Cost account               | Q1 cost per patient day | Q2–Q4 cost per patient day |
|----------------------------|-------------------------|----------------------------|
| Surgical services          | \$2,337                 | \$3,617                    |
| Data processing            | \$481                   | \$1,521                    |
| Physical therapy           | \$321                   | \$861                      |
| Electrodiagnosis           | \$134                   | \$552                      |
| Recovery room              | \$267                   | \$464                      |
| Magnetic resonance imaging | \$121                   | \$219                      |

### Discussion and Conclusion

Hospitals play a pivotal role in the healthcare system, and patient satisfaction has emerged as a key metric in evaluating hospitals' performance. With the high cost of healthcare being passed along to the patient in the form of higher copays and higher deductibles,

consumers are making more conscious choices regarding where to receive healthcare services. Those choices are affected by individuals' previous experiences and by the experiences of trusted advisors. Interestingly, a pattern has been observed in the financial strategies of hospitals with high patient satisfaction scores.

These hospitals, in contrast to hospitals with lower scores, allocate their resources differently, particularly in specific cost centers. One of the most striking differences is that hospitals with high patient satisfaction scores invest significantly more in surgical services than do hospitals with lower scores. Surgical services—encompassing a range of procedures and the associated recovery rooms—are typically viewed as lucrative revenue streams for most hospitals (Ahmadi et al., 2019). However, high-scoring hospitals' higher levels of investment in surgical services suggests that these hospitals are committed not just to generating revenue but also to enhancing patient outcomes and experiences. This conclusion is corroborated by these hospitals' higher spending in physical therapy, electrodiagnosis, recovery rooms, and magnetic resonance imaging. These areas, which are intrinsically linked to surgical services, play a crucial role in diagnosis and postoperative care and directly affect patient recovery and satisfaction. These areas also have high patient-contact frequency, and research shows that a strong consumer orientation is critical for high patient satisfaction (Verleye et al., 2021). An intriguing finding from the study is that hospitals with high patient satisfaction scores invested more in data processing. Unlike areas in which increased spending is directly related to providing clinical services, data processing is part of an administrative, "back office" domain. The significance of this investment becomes clearer when considering the transformative role of technology in healthcare. For instance, electronic health records have revolutionized patient care by ensuring seamless information flow, reducing errors, and enhancing patient-provider communication. Multiple studies have

identified the positive correlation between electronic health records and both hospital quality and patient satisfaction (Chan, Rigler, & Van Rossen, 2023; Jarvis et al., 2013). Thus, hospitals' increased spending on data processing can be seen as a strategic move to leverage technology for better patient outcomes and experiences.

It is essential to note that all hospitals in the study spent similar amounts in some areas of hospital operations, including acute care, central services, laundry and linen, and in-service education. Yet, for hospitals with high patient satisfaction scores, these specific expenses correlate with profitability. This result suggests that although both sets of hospitals are incurring similar expenses, their returns on investments differ. The reasons for this disparity could be multifaceted, ranging from operational inefficiencies to differences in service quality, to the internal built environment, and even to external factors such as payer mix and regional demographics (Carroll & Lord, 2016).

Hospitals' expense management strategies appear to be closely connected to patient satisfaction scores. Identifying whether a causal relationship exists between spending and patient satisfaction is a topic for further research, but the current findings provide valuable insights for hospital administrators. By understanding and implementing the expense management strategies of hospitals with high patient satisfaction scores, healthcare institutions can potentially enhance both profitability and patient satisfaction. Of course, as with all strategic decisions, it is essential to take a nuanced approach that considers not only the unique challenges and opportunities of a specific hospital but also its competitors' offerings.

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