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Assessing the Relationship(s) Between Efficiency and Total Performance Scores for Hospitals in Miami, Florida

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Walden University

College of Management and Human Potential

This is to certify that the doctoral study by

Latasha Williams

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2023

Abstract

Assessing the Relationship(s) Between Efficiency and Total Performance Scores for

Hospitals in Miami, Florida

by

LaTasha Williams

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

Walden University

February 2024

Abstract

The U.S. health care system is faced with the need to reduce costs and improve clinical outcomes. The Centers for Medicare and Medicaid Services' (CMS) Hospital Value-Based Purchasing program ensures that health care delivery is value-based rather than volume-based. In this quantitative study, the relationship(s) between efficiency and total performance scores (TPS) for hospitals in Miami, Florida participating in the CMS HVBP in 2021 were examined. Using the Donabedian model, the research question focused on assessing the correlation between total performance hospital efficiency scores. The samples included for-profit and nonprofit government and private-owned hospitals. A partial correlation was used to determine the relationship between hospital efficiency and TPS while controlling for hospital ownership type. The correlation was not statistically significant, r (13) = -.229, p = .411. However, zero-order correlations showed that there was a statistically significant, positive correlation between hospital efficiency and TPS, r (14) = .505, p = .046. Implications for positive social change include using the findings to understand how efficiency affects TPS and to implement measures addressing hospital inefficiencies with the goal of reducing expenditure and improving performance and patient health outcomes.

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Dedication

This dissertation is dedicated to my son, La-Brontae, and much-loved grandmother, Myra J, whose unwavering support made this possible. My son has been a continued source of inspiration throughout this journey. Some obstacles were inevitable, but defeat was never an option. This one is for the dreamers; may you exceed your own highest expectations.

"Breathe. Let go. And remind yourself that this very moment is the only one you know you have for sure."

–Oprah Winfrey

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Section 1: Foundation of the Study and Literature Review

Introduction

Hospital expenditure in the United States has considerably increased in recent years compared to 2018. For instance, in 2018, the total hospital spending amounted to approximately $3.6 trillion (Centers for Medicare and Medicaid Services [CMS], 2019). The National Health Expenditure reported an increase of 9.7% to $4.1 trillion or $12,530 per capita and became 19.7% of the GDP in 2020 (Rama, 2022). The following year, U.S. health care spending increased by 2.7%, bringing spending to $4.3 trillion in 2021 (Rama, 2022). This growth was slower than the increase of 10.3% in 2020 due to the COVID-19 pandemic response (CMS, 2022). To regulate hospital expenditure, the CMS (2019) introduced the Hospital Value-Based Purchasing (HVBP) program to reward or penalize health care facilities based on the performance goals realized. Although some studies have evaluated the factors impacting hospital efficiency and Total Performance Scores (TPSs; Alsaqri, 2016; Izon & Pardini, 2017; Karaca & Durna, 2019), fewer efforts have correlated to the variables.

In this quantitative study, I examined the relationship(s) between efficiency and TPSs for hospitals in Miami, Florida. The data were collected from the CMS Hospital Compare and American Hospital Association Annual Survey database for the 2021 fiscal year. The hospital ownership type was a central correlational variable in the study. In this section, I describe the study design and rationale, methodology (study population and data collection sampling), data collection, and operationalization. In addition, validity

threats and ethical procedures are explored. The critical issues are summarized at the end of the section.

Background

I conducted this study to assess the relationship between efficiency and TPSs for hospitals in Miami, Florida. The dependent variable was TPSs, and the independent variable was hospital efficiency. Various studies have used CMS data to determine TPSs. For instance, Al-Amin and Li (2019) used TPSs from hospital-level data in CMS databases in a study investigating the relationship between hospital performance and staffing.

The United States have made substantial advancements regarding technology and medical resources compared to many other countries; however, the nation is significantly affected by medical inefficiencies, high costs, and poor health care outcomes (Haley et al., 2017). For instance, the Institute of Medicine (IOM; 2000) reported that of the 1 million individuals injured in hospitals, approximately 98,000 died due to medical errors (Haley et al., 2017). Consequently, the IOM launched a national initiative to mitigate medical inefficiencies, leading to limited progress (Haley et al., 2017). Furthermore, abuse, waste, and fraud cost the U.S. health care system about $760 billion to $935 billion yearly (approximately 30% of the total health care spending; Shrank et al., 2019).

Traditionally, health plans have focused on safeguarding patients from value and cost decisions since plan benefits had reasonable deductibles and copayments. Patients were typically restricted in selecting a preferred medical provider, and quality data and information were inadequately accessible. Haley et al. (2017) further asserted that insured

patients had limited incentives to select health care centers based on cost and quality considerations; hence, regardless of the considerable efforts to refine and implement report cards for health care centers to increase transparency in medical care quality, they were unnecessarily used or wanted by the hospitals or patients. The Harvard School of Public Health and the Robert Wood Johnson Foundation undertook a countrywide poll involving 1,034 adult participants in 2011 and reported that many patients believe that there is no or little difference in the hospitals' quality within a given community. According to the findings, patients select hospitals based on familiarity and neglect quality ratings. Moreover, approximately 50% of the sampled patients chose surgeons based on family references and not quality ratings; hence, patients did not consider improved health care system quality or transparency (Haley et al., 2017).

According to Banton (2022), efficiency entails a performance's peak level utilizing the minimum inputs possible to attain optimal outputs. Efficiency demands decreasing unnecessary resources used in producing results/outcomes, including energy, time, and finances. When organizations increase efficiency levels, they mitigate resource wastage, improving overall performance (IOM, 2000). The TPS was introduced into the health care system to directly impact hospital spending. CMS (2019) measures the TPS by four domains for hospitals, person and community engagement, clinical outcomes, efficiency and cost reduction, and safety, with each part accounting for 25% of a hospital's TPS.

According to Asbu et al. (2020), inefficiencies are pervasive within health care systems. The World Health Organization (2020) approximated that 20%–40% of global

health care spending constitutes waste. For example, in the United States, the estimated cost of waste in health care was from $760 billion to $935 billion (Shrank et al., 2019). In recent years, the amount of waste has been 25% of total health care spending (Peter G. Peterson Foundation, 2023). In earlier years, the yearly waste cost within the U.S. healthcare system ranged between 21% and 47% of the total expenditure (Hackbarth, 2012). Improving the health care system's efficiency has attracted significant attention following high health spending, being influenced by factors like epidemiological and demographic changes, the population's rising life expectations, and health technology development (Asbu et al., 2020).

To reduce inefficiencies, improve the spending of money reimbursed to hospitals, and reduce hospital spending, CMS (2019) developed a program called value-based purchasing (VBP), which was originally designed to improve the quality of care for patients in the hospital, which would, in turn, improve the overall hospital stay. The program encourages hospitals to attempt to improve the quality, efficiency, patient experience, and safety of care received by Medicare beneficiaries. Acute care inpatient stays are improved by eliminating or reducing adverse events, which can result in patient harm or health care errors. Adopting evidence-based care standards and protocols to obtain the best outcomes for Medicare patients; incentivizing hospitals to improve patient experience; increasing the transparency of care quality for consumers, clinicians, and others; and recognizing hospitals that provide high-quality care at a lower cost to Medicare can also improve hospital stays for Medicare beneficiaries (CMS, 2019). Miller (2016) affirmed that under the VBP program, health care centers receive a TPS generated

based on their performance defined by aspects of clinical processes, patient experiences, efficiency, and outcomes. TPSs affect hospitals' sustainability and profitability in the increasingly competitive health care arena (Miller, 2016). Therefore, efficiency and total performance are pertinent issues within the U.S. healthcare system.

Izón and Pardini (2017) examined the association between cost efficiency and Medicare's recommended HVBP framework. Highly efficient hospitals have higher total performance and patient satisfaction scores than inefficient hospitals. Furthermore, the researchers found that health care facilities using HVBP are significantly cost-effective compared to those not using such programs. The authors concluded that hospitals could invest limited resources to recognize and implement cost-effective programs and procedures to promote patient experiences and better total performance scores (Izón & Pardini, 2017).

Rutter and Park (2020) reviewed the extant literature to determine the prevailing relationships between VBP and hospital characteristics as well as assess if the VBPs recommended by CMS imitated acute-care hospitals' health care delivery quality. Their findings indicated that the VBP performance is affected by the hospitals' teaching status, safety-net level, and size. Their results also underpinned several extrinsic factors affecting TPSs in acute-care health care centers. Therefore, the researchers suggested that before penalizing inefficient hospitals, various aspects, like level of acuity, patient population, and socioeconomic status, should be considered.

Researchers have also evaluated the application of VBP to improve health care delivery quality in hospitals. For instance, Carroll and Clement (2020) evaluated VBP's

impact on hospital performance and identified the VBP's financial penalties and bonuses as factors encouraging hospital service delivery quality improvements. They examined the traits of health care centers with consistently good or improved VBP program performance and found that limited factors under hospital managers' direct control and regulation are associated with VBP program improvements.

Ramirez et al. (2021) assessed performance score disparities based on hospital type, including general hospitals, accountable care organizations, and physician-owned surgical hospitals (i.e., private and public hospitals) and compared the temporal differences between TPSs and secondary composite cost-efficiency, safety, process, patient satisfaction, and outcome measures among the sampled hospitals. Their findings indicated all the health care centers considered in the study recorded decreased TPSs from 2015 to 2017. Because of the individual domain scores and weighting reallocation, physician-owned surgical hospitals had the highest TPS (59.9), followed by Kaiser (49.2), accountable care organizations (36.7), general hospitals (34.8), and Vizient (30.7; $p < .001$; Ramirez et al., 2021).

Other factors influence TPSs in hospitals. For instance, Al-Amin et al. (2020) interrogated the market-level and organizational variables impacting hospital performance based on absolute performance scores, finding that only 8.4% of the sampled hospitals were performance sustainers. The health care centers in rural settings with significant patient populations covered by Medicare Advantage plans sustained their performance. Their study also showed that hospital size, nursing staff levels, and rural

markets maintain significant performance over time (Al-Amin et al., 2020). The authors

suggested that hospital management must examine staffing levels to realize high TPSs.

Research Gap

Although the prevailing literature has considerably explored various aspects

influencing TPSs, like hospital size, ownership, VBP programs, and staffing, there are no

or few research studies that explicitly assessed the relationship(s) between hospital

efficiency and TPS. Furthermore, no studies have focused on assessing the relationship(s)

between these variables in health care centers in Miami, Florida. There is also a lack of

information about how the different components of TPS have been previously studied in

research regarding overall TPS. According to Banton (2022), efficiency entails a

performance's peak level utilizing the minimum inputs possible to attain optimal outputs.

Efficiency demands decreasing unnecessary resources used in producing

results/outcomes, including energy, time, and finances. When organizations increase

efficiency levels, they mitigate resource wastage, improving overall performance.

The TPS was introduced into the health care system to directly impact hospital

spending. CMS (2019) measures TPSs for hospitals using four domains, clinical

outcomes, safety, community and personal engagement, and cost reduction and

efficiency, with each part accounting for 25% of a hospital's TPS. Efficiency and TPSs

directly affect health care delivery; therefore, I assessed the relationship(s) between

hospital efficiency, customer satisfaction, and TPSs to fill this literature gap.

CMS" s (2019) VBP program uses TPSs to determine hospital financial

incentives or penalties, with individual TPSs used to compensate health care personnel,

including physicians. Efficiency is one of the domains used in determining hospitals'

TPSs (CMS, 2019). When hospitals ensure high efficiency, they reduce costs and

improve care delivery quality and patient outcomes (CMS, 2014). Despite the importance

of efficiency and TPSs to hospitals, healthcare personnel, and patients, limited research

has explored the connection between these variables. This study generated knowledge

that could help hospitals in Miami design better approaches to positively influence

efficiency and TPSs by reducing unnecessary expenditure and increasing patient health

outcomes.

<div align="center">**Problem Statement**</div>

The specific problem addressed in this study was the limited knowledge regarding

hospital efficiency and its impact on TPSs for hospitals in Miami, Florida, while

controlling for hospital ownership type. In 2013, CMS implemented the HVBP program

in the United States, which impacts payments for more than 3,000 health care facilities.

Increasing health care costs have heightened medical error awareness and the number of

Americans with medical insurance, prompting the need to improve health care delivery

quality. According to Izon and Pardini (2017), inefficiencies guarantee limited value for

patients' money, particularly when they must pay upfront fees or through health

insurance, as most of Miami's hospitals demand. Efficiency is at peak level when limited

inputs realize maximal outputs. When efficiency is inadequate, performance is negatively

affected.

Health care facilities must be ready to provide significantly more services;

however, this potentially causes excessive resource utilization, measured based on staff

and equipment (Sielskas, 2021). Due to the uncertainty, hospitals must maintain treatment and diagnostic potentialities or transfer patients to specialist hospitals for timely treatment. Considering the efficiency perspective, assessing such situations is difficult due to unknown future demand; moreover, although the cases may appear efficient at the level of the whole system, they may be inefficient at individual hospital levels (Sielskas, 2021).

Akinleye et al. (2019) investigated the correlation between health care finances and patient care's safety and quality, finding that hospital finances significantly impact efficiency. There is a difference in the funding of private and public hospitals. For instance, Woolhandler et al. (1983) reported that the state support for private and public hospitals in Berkeley and Oakland varied and that the private hospitals in these regions received subsidies from the state government for approximately 60% of their revenues. The authors further revealed that the value of the subsidies issued to private hospitals was about 4.5 times higher than what the government spent on public hospitals in the two cities (Woolhandler et al., 1983). In Berkeley and Oakland, public health services had decreased while state health spending and private medical centers' earnings rose dramatically. Although all private hospitals are technically nonprofit, they demonstrate revenue-maximizing behavior that leads to socially unfair and medically inappropriate allocation of funds. If government spending in the private sector were subjected to more public oversight and control, resources could be generated for public hospitals, and resources could be distributed more fairly and sensibly (Woolhandler et al., 1983).

Patient care safety and quality are critical TPS determinants. Health care facilities face significant pressure to minimize costs while sustaining quality outcomes, and interventions like VBP developed to incentivize quality can only ensure adequate health for everyone if they reflect the complex correlation between hospital financial stability and quality (Akinleye et al., 2019). If such issues remain unaddressed, these efficiencies and TPS improvement programs might perpetuate the health care disparities predominant in the U.S. health system by disproportionately penalizing safety net health care centers and their dependent underserved communities. Akinleye et al. (2019) affirmed that declining hospital finances compromise patient care and health outcomes.

Significant research has investigated hospital efficiency and performance. Most studies have explored factors affecting hospital efficiency, patient satisfaction, and performance, including hospital ownership type. Generally, aspects of increasing hospital efficiency led to improved performance; however, limited findings have reported the correlation between hospitals' efficiency and TPSs. Therefore, I conducted the current study to address this problem and bridge the prevailing practice-based research gap by assessing the relationship between efficiency and TPSs for hospitals in Miami, Florida.

Purpose of the Study

In this quantitative study, I examined the relationship(s) between efficiency and TPSs for hospitals in Miami, Florida. The independent variable was hospital efficiency, and the dependent variable was TPSs. The covariate variable was hospital ownership type, defined as private or government-owned hospitals in Miami, Florida.

Research Question and Hypothesis

Research Question: Based on CMS Hospital Compare data from January 1, 2021,

to December 31, 2021, what is the relationship/correlation between hospital

efficiency and TPSs for hospitals in Miami, Florida, when controlling for hospital

ownership type?

H_0: There is no significant relationship/correlation between hospital

efficiency and TPSs for hospitals in Miami, Florida, when controlling for

hospital ownership type.

H_a: There is a significant relationship/correlation between hospital

efficiency and TPSs for hospitals in Miami, Florida, when controlling for

hospital ownership type.

Conceptual Framework

The study was conceptually grounded on the Donabedian model. Binder et al.

(2021) indicated that the Donabedian model is a conceptual framework used to examine

health services and evaluate health care quality. According to this framework, health care

quality information can be sourced from structures, processes, and outcomes. Structures

represent the health care delivery context, including equipment, financing, staff, and

hospital buildings, while processes entail the transactions between providers and patients

throughout health care delivery and outcomes denote health care's effect on populations

and patient health status (Moucheraud & McBride, 2020).

Although other frameworks for examining health care quality, like the Bamako

Initiative, World Health Organization-recommended Quality of Care framework, and the

Integrated Chronic Disease Management model, exist, the Donabedian conceptual model

has often been applied in research assessing health care quality (Ameh et al., 2017).

Using the Donabedian model and specific, measurable, achievable/attainable, relevant,

timely criteria, many payer entities and professional organizations have widely applied

health care performance metrics for evaluating health care quality (Binder et al., 2021).

The Donabedian model was a logical and appropriate choice as the conceptual framework

for the current study because it addresses important organizational aspects, including

structure, processes, outcomes, and their interconnections. The model combines these

elements with social and health factors (Binder et al., 2021). Therefore, the framework is

appropriate for evaluating hospitals' TPSs. The Donabedian model was relevant to this

study because it holds that suitable structures increase the likelihood of excellent

processes, increase opportunities for better health care outcomes, and promote patient

satisfaction.

Nature of the Study

In this study, I used a quantitative correlational design to assess hospital

efficiency and TPSs. Hospital efficiency and TPS data were accessed from the CMS

Hospital Compare database. The targeted hospitals were purposively selected based on

ownership (i.e., private and government owned) and geographical location (i.e., Miami,

Florida). All sampled hospitals were from Miami, Florida. I addressed the research

question through a Pearson correlation analysis to underpin the relationships between

hospital efficiency and TPSs. According to Ellis-Jacobs (2011), correlational analyses

assess the prevailing relationships between one or more independent quantitative

variables and one or more dependent quantitative variables. In this quantitative study, the

independent variable was hospital efficiency, and the dependent variable was TPS. The covariate variable was hospital ownership type for private and government-owned hospitals in Miami, Florida.

Literature Search Strategy

To search for literature to include in this study, I focused on peer-reviewed articles published within the last 5 years and available on Google Scholar and/or databases accessible through the Walden University Library. The specific databases included PubMed, MedLine, and CINAHL. The keywords searched were *efficiency, TPS in hospitals, Total Performance Score, value-based purchasing, HVBP, patient satisfaction, care quality,* and *healthcare value-based purchasing program performance*.

Literature Review Related to Key Variables and Concepts

Zhao et al. (2015) examined the relationship between hospital efficiency, value-based purchasing, and performance using the American Hospital Association Annual Survey and the Medicare Hospital Compare data. According to the authors, efficiency was included as a domain in HVBP to improve quality and hospital performance. Their findings showed a positive correlation between patient satisfaction and hospital efficiency. Generally, inefficient hospitals in the study were characterized by considerably low patient satisfaction scores, and the opposite is true (Zhao et al., 2015). Consequently, Zhao et al. affirmed that hospitals should invest resources to implement cost-effective processes to promote patient satisfaction and increase performance scores.

Several studies have underpinned the relationship between hospital efficiency and TPSs. Spaulding et al. (2020) assessed the connection between healthcare center

performance based on TPS and the inherent hospital characteristics, including geographical location, teaching hospital status, hospital size, ownership type, system membership, average Medicare and Medicaid-supported patients, inpatient revenues percentage, operating margins, and case mix indices. The authors found that medical organizations with fixed and robust resources could not perform exceptionally and consistently and that some hospitals could not record consistent positive performances due to HVBP program measurement changes and organizational responses. Following these findings, Spaulding et al. recommended that policymakers should consider hospitals' ability to react to HVBP program changes. Revere et al. (2021) investigated the disparities in individual and overall TPSs for health care institutions between 2014 and 2018. Their findings indicated that the TPSs' comparative ranking approach does not hamper poor-performing hospitals from making significant improvements regarding care delivery to achieve top ranks. In a study testing the impact of hospital size and ownership on VBP scores, Chatfield (2016) reported that profit-oriented hospitals perform better than government-controlled and nonprofit hospitals in composite performance measures, VBP total performance scores, and Hospital Consumer Assessment of Healthcare Providers and System.

Hospital Value-Based Purchasing

The HVBP program was enacted in 2010 as part of the Patient Protection and Affordable Care Act of 2010 (Blumenthal & Jena, 2013). The program was established to ensure high-value rather than high-volume care delivery in hospitals. From late 2012, health care centers adopting the HVBP program were subjected to various performance-

centered CMS incentives that reflected hospitals' ability to realize aspects like caregiver- and patient-centered experience, cost reduction and efficiency, community or population health, clinical outcomes and processes, care coordination, and patient safety. HVBP was intended to allow CMS to promote Medicare beneficiaries' health by purchasing cost-effective and better care for them (Blumenthal & Jena, 2013). The CMS' value conceptualization is based on cost reduction, improved care, and health outcomes.

Independent Variable

The study's independent variable was hospital efficiency. This variable was vital to this study because it is central to hospital performance and patient satisfaction. Hospitals are concerned with improving efficiency to promote patient satisfaction and total performance. According to Khalifa (2017), many health care centers have conventionally reacted to inherent inefficiencies by investing more resources despite the evidence in the literature showing that hospital efficiency entails a flow process. To increase efficiency, hospitals have been cited for using various interventions, like improving communication, reducing patient hospitalization, and emphasizing laboratory tests (Khalifa, 2017). Khalifa asserted that efficiency in hospitals is a vital tenet that can only be promoted via integrative processes involving all staff in health care centers.

Dependent Variable

The dependent variable was the TPS. Various studies have used CMS data to determine TPSs. For instance, Al-Amin and Li (2019) used TPSs from hospital-level data in CMS databases in a study investigating the relationship between hospital performance and staffing.

Covariate Variable

According to the prevailing literature involving the type of hospital as a study variable, for-profit government and private-owned not-for-profit hospitals have different health care business and decision-making practices. Freedman and Lin (2018) indicated that nonprofit-based hospitals were unlikely to offer unprofitable health care services in competitive markets. Nonprofit hospitals have been cited for having many non-care provider staff members compared to profit-based hospitals, reducing operating margins and increasing health care quality and patient satisfaction outcomes (Hansen & Sundaram, 2018). Meghan et al. (2018) confirmed that nonprofit hospitals significantly implement more health management interventions than private and government-owned hospitals. Therefore, this variable was essential to the current study because hospital types can impact the relationship between hospital efficiency, patient satisfaction, and TPSs. This study included both private and government-owned hospitals.

Definitions

Hospital ownership type: The classification identifying health care facility ownership type based on government, federal, for-profit, and nonprofit status (Niles, 2019). The archival data on the CMS Hospital Compare database does not indicate hospital ownership type; therefore, I obtained the type of hospital ownership by searching information relevant to the hospitals on the internet. This study included for-profit and nonprofit government and private-owned hospitals in Miami, Florida. The hospital ownership type was coded as for-profit government-owned, not-for-profit government-

owned, for-profit private-owned, and not-for-profit private-owned. If the ownership type was not found, I coded it as unknown.

Hospital efficiency: A rating reflecting how a hospital best uses production resources to optimally fulfill inherent objectives (Mateus et al., 2015). Hospitals are deemed efficient to reflect the best resource application to record optimal outputs. The CMS Hospital Compare database defines hospital efficiency based on Medicare Spending Per Beneficiary (MSPB). The MSPB measure examines health care centers' efficiency with the federal median hospital. The MSPB evaluates Medicare Parts A and B for care services available by health care centers between 2 days after admission and 1 month after discharge. In this measure, the payments included are risk adjusted and price standardized (CMS, n.d.). The MSPB measure is calculated using the following steps: (a) standardize Medicare payments included in MSPB episode costs, (b) calculate expected payment-standardized episode costs, (c) calculate risk-adjusted MSPB amount, (d) calculate the specialty-adjusted expected cost, and (e) calculate the specialty-adjusted MSPB measure (CMS, 2015).

TPS: A score denoting the numerical values that range from 0 to 100 that are being given to every health care organization in a region depending on the performance under the HVBP program with respect to the fiscal year (CMS, 2019). According to the CMS, the TPS is measured by analyzing the performance of the hospital using four measurement domains (i.e., safety, cost reduction and efficiency of the hospital, clinical outcomes, and community and individual engagement with a hospital) that usually each contribute to approximately 25% of the total TPS. TPS is an HVBP approach for

determining penalties or bonuses awarded to hospitals based on their aggregate

performance (Chen et al., 2019). In other words, TPS entails an average score (given as a

percentage) a hospital is assigned after a committee has reviewed, analyzed, and certified

the relevant performance goals achieved. TPS was the independent variable in the current

study.

CMS: A U.S. Department of Health and Human Services division responsible for

providing the country's fundamental health care plans and generating and disseminating

reports regarding the health care system's state (CMS, 2019).

HVBP: A program designed by CMS (2017) to reward health care facilities with

incentives based on Medicare beneficiaries' quality health care metrics.

VBP: A program that rewards hospitals with incentive payments for the quality of

care provided in the inpatient hospital setting (CMS, 2021).

Assumptions

In this study, I assessed the correlation between hospital efficiency and TPSs for

hospitals in Miami, Florida. I anticipated that the application of more variables could

have resulted in more robust explanations regarding the relationship between hospital

efficiency and TPSs; however, limited research studies underpinned optimal variable

combinations. Hence, the primary hospital characteristic, ownership type, was used as a

covariate variable. The other assumption was that data contained in the CMS Hospital

Compare and American Hospital Association Annual Survey databases had been

collected using appropriate techniques, was accurate in the form of patients' survey

responses, and had no gaps that could jeopardize the study's findings. Hospitals included

in the study were selected purposively based on location (i.e., Miami, Florida) and ownership type (i.e., private or government-owned). My final assumption was that the variables had bivariate normality to enable correlational analyses.

Scope and Delimitations

Scope of the Study

The study's scope underpinned the relationship between hospital efficiency and total performance scores. I attempted to determine if efficiency affects TPSs to help hospitals in Miami implement effective interventions to promote performance and efficiency based on the generated knowledge. The data came from two secondary databases, CMS Hospital Compare and the American Hospital Association Annual Survey. I sourced hospital efficiency data and TPSs from the CMS Hospital Compare database.

Delimitations

This study included private and government-owned hospitals in Miami, Florida. I downloaded data on hospital efficiency and TPSs from January 1, 2021, to December 31, 2021, from the CMS website. Even though many health care facilities use different mechanisms in determining efficiency and performance, this study only utilized the data provided by the CMS Hospital Compare databases. I only used the Donabedian model as the conceptual framework and ignored many other existing theories, like those associated with health care provider interpersonal skills, sociodemographic characteristics, and health care quality, which also affect hospital efficiency and TPSs.

Generalizability

The study's analytical approach and findings can be extrapolated to other hospitals within Miami, Florida. Similarly, the results are generalizable when different hospital ownership types, like nonprofit health care facilities, are considered. It is also possible that other health care administrators could borrow the study's design to further assess how hospital efficiency affects TPSs for hospitals within Miami, Florida.

<div align="center">

Significance of the Study

</div>

Although many studies have been conducted to investigate the factors that affect hospital efficiency and TPSs, limited studies have attempted to correlate the variables. The current study findings benefit health care leaders because the results may point to the relationship between hospital efficiency and TPSs and fill a gap in the literature gap regarding the relationship between hospital efficiency and TPSs.

Similarly, the findings of this study are significant for positive change. A positive association between hospital efficiency and TPSs may encourage hospitals to address inherent inefficiencies to increase performance and health care delivery quality to improve the community and individual health outcomes. Findings indicating negative correlations between hospital efficiency and TPSs may encourage hospitals to focus on other factors to improve customer satisfaction and save money on resources that could have been used to improve efficiency. The findings of this study also provide more insights into the need to ensure the equitable allocation of resources and government support to both public and private hospitals, which will help in reducing the unfair

differences in health care service access, delivery, and utilization that has been experienced within the United States.

Social Change Implications

Private and public sector policymakers are committed to improving the health care system's value in the United States (Paddock et al., 2017). Policymakers are implementing policy levers to increase health care quality and reduce costs, like encouraging marketplace performance information transparency and compensating health care providers depending on performance. According to Paddock et al. (2017), the U.S. Department of Health and Human Services has developed value-centered payment targets for Medicare aimed at high-value health care, attaching payment to value and quality via an alternative payment model application. Notably, the Medicare Access and CHIP Reauthorization Act of 2015 created a novel value-centered approach for compensating physicians. Regarding the Merit-Based Initiative Payment System, healthcare personnel, including physicians, are evaluated and paid differently depending on composite quality, resource utilization, care information advancement, and practice improvement measures (Paddock et al., 2017). The Merit-Based Initiative Payment System also addresses address hospital quality and affects payment to hospitals.

Presently, even private payers have adopted value-centered incentives. The private sector value-sensitive pay-for-performance initiative implemented in California by the Integrated Healthcare Association affirms this advancement. The State of California Office of the Patient Advocate (2022) confirmed that public report cards are becoming popular for reporting health care provider performance based on costs and

quality. The commitment to improve health care value is encouraged by the belief that health care delivery is affected by overall inefficiencies (Paddock et al., 2017). Therefore, improving patient health and care delivery quality at prevailing spending levels is possible. By assessing the relationship between hospital efficiency and TPSs in Miami, Florida, this study has considerable potential for improving patient health and health care quality. Healthcare providers may use the current study findings to understand how efficiency affects TPSs and their compensation as well as implement measures addressing hospital inefficiencies to reduce expenditure and improve performance and patient health outcomes. Private and public policymakers may also use the results of this study to develop policies to increase hospital efficiency and health care quality in Miami, Florida. In addition, hospitals can use the findings to increase efficiency and mitigate penalties or increase bonuses received based on TPSs.

Summary and Conclusion

The purpose of this quantitative study was to assess the relationship between hospital efficiency and TPSs for hospitals in Miami, Florida. In this section, I introduced the study and described the background, problem statement, and purpose of the study. The research question and hypotheses were presented, and the conceptual framework was explained. I also discussed the nature of the study and provided a literature review. All relevant definitions, assumptions, and limitations were addressed and explained.

Section 2: Research Design and Data Collection

Research Design and Rationale

In this quantitative study, I assessed the relationship between hospital efficiency and TPSs for hospitals in Miami, Florida. The secondary data were obtained from the CMS Hospital Compare database (from January 1, 2021, to December 31, 2021). This was an important time period because, in January 2021, the reported death toll from COVID-19 in the United States surpassed 400,000 (Centers for Disease Control and Prevention, 2023). During this time, the United States was administering COVID-19 vaccines and recovering from the pandemic. According to Cheng and Philips (2014), secondary data analysis is a fundamental approach to healthcare-related research to investigate existing data. The study's independent variable was hospital efficiency, and the dependent variable was TPS. The covariate variable was hospital ownership type for private and government-owned hospitals in Miami, Florida. The following research question and hypotheses guided the study:

Research Question: Based on CMS Hospital Compare data from January 1, 2021, to December 31, 2021, what is the relationship/correlation between hospital efficiency and TPSs for hospitals in Miami, Florida, when controlling for hospital ownership type?

H_0: There is no significant relationship/correlation between hospital efficiency and TPSs for hospitals in Miami, Florida, when controlling for hospital ownership type.

H_a: There is a significant relationship/correlation between hospital efficiency and TPSs for hospitals in Miami, Florida, when controlling for hospital ownership type. For this study, I utilized Pearson's product-moment correlation to determine the connection between hospital efficiency and TPSs for hospitals in Miami, Florida. According to Creswell (2017), a Pearson correlation is vital to establishing an association's magnitude and strength between variables measured based on a ratio scale or intervals. I also used logistic regression to control for hospital ownership type. Benesty et al. (2009) indicated that the correlation coefficient, r, presents a linear relationship's strength and magnitude between two random variables. When r is zero, there is no significant correlation between the variables. A positive r value indicates a significant positive correlation between the variables, while a negative value suggests a negative correlation between variables. Notably, r values range between -1 and 1. Therefore, within the context of the current study, the Pearson correlation could help healthcare administrators determine appropriate steps regarding hospital efficiency and the relationship between efficiency and TPSs. In this correlational study, there were no time or resource constraints.

Some previous studies have applied the correlational approach to underpin the relationships between variables related to hospital efficiency and TPSs in the United States and found that there is a strong correlation between the TPS of hospitals and the variables that determine hospital efficiencies, such as patient satisfaction or patient experiences (Isaac et al., 2010). Akinleye et al. (2019) conducted a correlational study to determine the relationship between patient safety and quality and hospital finances in 108 acute care hospitals in New York. Their findings indicated that there was a significant

relationship between hospital safety/quality performance scores and hospital financial performance ($r = 0.34$, $p < 0.001$; Akinleye et al., 2019). They also found a positive correlation between CMS HVBP total and composite financial performance scores ($r = 0.277$, $p = 0.002$). Based on these findings, Akinleye et al. concluded that exceptional financial performance leads to a better patient experience of health care and is the most vital component distinguishing safety and quality. Therefore, financially sound health care facilities maintain reliable systems and resources to continuously improve the quality of care.

In another similar study, Rangnekar et al. (2015) used a correlation approach to assess the relationship between hospital bond ratings and HVBP program scores. They examined the connection between HVBP domains, including MSPB, outcome, patient experience of care, the clinical process of care, and hospital bond score ratings. The authors sampled 285 hospitals participating in the CMS HVBP program and had Moody's ratings for 2012. Using a binary logistic regression framework, they found a significant relationship between hospital bond ratings and MSPB. Notably, when other financial performances and HVBP scores were controlled, there was no substantial improvement in MSPB overall scores (Rangnekar et al., 2015). Therefore, I determined that using a correlational approach in this study was appropriate and highly likely to expose the relationships between hospital efficiency, patient satisfaction, and TPSs for hospitals in Miami, Florida.

Methodology

Population

The study's population entailed hospitals participating in the CMS HVBP program in Miami, Florida. At the time of the study, approximately 220 hospitals in Florida and 30 hospitals in Miami (American Hospital Directory, 2022) were under the CMS HVBP program and submitted important data regarding hospital efficiency and TPSs. There was a total of 30 hospitals in Miami covering every specialty available and some of the leading specialty care centers in the world (The Beacon Council, 2018).

Sampling and Sampling Procedures

I used a quantitative approach in this study to select study subjects and did not use a sampling frame. The sampled hospitals purposively included only those within Miami, Florida that had relevant data on efficiency and TPS for the fiscal year of 2021.

The CMS Hospital Compare database has publicly accessible data regarding hospital efficiency and TPSs for hospitals under the HVBP program. Using the data navigator, information about specific programs like CMS HVBP, care settings, and healthcare topics can be sourced. The database allows users to filter data in the public domain by considering aspects like document types, health care settings, and geographical location. I downloaded hospital performance scores and efficiency scores for analysis. There were no specific permissions required to access data from the CMS-controlled databases. Since the database does not indicate the hospital ownership type, I searched for this information was searched from the relevant hospital websites or credible

sources on the internet. If I could not find information on hospital ownership type, a third "unknown" category was created.

Many studies have used data from CMS-related databases to investigate hospital efficiency and TPSs. For instance, Zhao et al. (2015) used archival data from the American Hospital Association Annual Survey database to evaluate the connection between hospital performance, efficiency, and VBP. They found that inefficient health care facilities had more inadequate patient satisfaction and TPSs than adequately efficient hospitals. Shwartz et al. (2008) sampled 3,275 hospitals from the Hospital Compare Database to estimate hospital quality composite measures and compute hospital ranks. Their results indicated a significant correlation in hospital ranks using the Bayesian hierarchical latent variable model. Therefore, I considered data from the CMS Hospital Compare database reliable and applicable to this study.

Instrumentation and Operationalization of Constructs

Since I utilized archival data from the CMS Hospital Compare database, there was no need to develop or use existing instruments to collect data. Data about hospital efficiency and TPSs were available on the CMS Hospital Compare databases. Regarding the variables' operationalization, I used one independent variable (i.e., hospital efficiency), one dependent variable (i.e., TPS), and one covariate variable (i.e., hospital ownership type) for data analysis.

Hospital Efficiency

Hospital efficiency reflects how a hospital best uses production resources to optimally fulfill inherent objectives (Mateus et al., 2015). Hospitals are deemed efficient

to reflect the best resource application to record optimal outputs. The CMS Hospital Compare database defines hospital efficiency based on MSPB. The MSPB measure examines health care centers' efficiency with the federal median hospital and evaluates Medicare Parts A and B for care services available by health care centers between 2 days after admission and 1 month after discharge. In this measure, the payments included are risk-adjusted and price-standardized (CMS, n.d.). The MSPB measure is calculated using the following steps: (a) standardize Medicare payments included in MSPB episode costs, (b) calculate expected payment-standardized episode costs, (c) calculate risk-adjusted MSPB amount, (d) calculate the specialty-adjusted expected cost, and (e) calculate the specialty-adjusted MSPB measure (CMS, 2015).

Price standardization eliminates variation sources, including geographical and index practice differences in cost and disproportionate share hospital and indirect medical education payments, while the risk adjustments take into consideration the patient's health status differences (CMS, n.d.). By using this approach to determine hospital efficiency, the CMS targets improve health care transparency and underpin health care centers availing high-quality care at minimum costs to Medicare. In 2015, the CMS (n.d.) finalized MSPB in the HVBP program under the efficiency and cost reduction category.

I considered the MSPB data provided by the HVBP's efficiency and cost reduction domain in this study. The data relevant to this study were the MSPB performance rate. The lowest score was about 0.8, while the largest was 1 for the fiscal year of 2021 for hospitals under the HVBP program. It is desired that the adjusted amount is lower than the expected amount. Scores were ratios, and therefore, anything

above 1 was bad, and anything below 1 was good. The MSPB measure of below 1 means that the hospital is not losing any money by not spending as much as they initially expected (CMS, 2015).

TPSs

The TPS denotes the numerical values that range from 0 to 100 that are being given to every health care organization in a region depending on the performance under the HVBP program for the fiscal year (CMS, 2019). According to the CMS (2019), the TPS is measured by analyzing the performance of the hospital using four measurement domains (i.e., safety, cost reduction and efficiency of the hospital, clinical outcomes, and community and individual engagement with a hospital) that usually contribute to approximately 25% of the total TPS. The TPS is an HVBP approach for determining penalties or bonuses awarded to hospitals based on their aggregate performance (Chen et al., 2019). In other words, the TPS entails an average score (given as a percentage) that a hospital is assigned after a committee has reviewed, analyzed, and certified the relevant performance goals achieved.

Hospital Ownership Type

Hospital ownership type refers to the classification identifying health care facility ownership type based on government, federal, for-profit, and nonprofit status (Niles, 2019). The archival data on the CMS Hospital Compare database did not indicate hospital ownership type; therefore, I obtained the type of hospital owner by searching information relevant to the hospitals on the internet. This study included for-profit and nonprofit government and private-owned hospitals in Miami, Florida. The hospital ownership type

was coded as for-profit government-owned, not-for-profit government-owned, for-profit private-owned, and not-for-profit private-owned. If the ownership type was not found, I coded it as unknown.

Data Analysis Plan

I downloaded the data regarding the study variables from the CMS Hospital Compare database and saved them in a Microsoft Excel CSV file. I eliminated all hospitals with incomplete and unclear data regarding hospital efficiency and TPSs for the 2021 fiscal year. Only hospitals based in Miami, Florida, and under the CMS HVBP program were used in the study. After cleaning the data, I exported it into the Statistical Package for the Social Sciences (SPSS) software for correlational analyses.

I conducted a Pearson's product-moment correlation to determine the relationship between hospital efficiency and TPSs in this study. Puth et al. (2014) indicated that correlation coefficient calculation is significantly applied in biological research studies. The zero correlation was tested, and the correlation coefficients range from -1 to 1. -1, or a value close to -1, indicated a significant negative correlation, while 1, or a value close to 1, suggested a significant positive correlation. Zero or a value close to 0 meant that the variables were not correlated. I used the correlation coefficients determined during the analyses to test the study's hypotheses. A significance level below 0.05 resulted in the rejection of the null hypothesis within a 95% confidence interval.

Threats to Validity

According to Creswell (2017), external validity threats ensue when inferences drawn from the sampled participants are applied inappropriately to other settings,

situations, or persons. This study had a potential threat to external validity, considering that hospital efficiency affects the TPSs recorded. Hence, I based hospital efficiency was based on the MSPB performance scores. The study only considered data for the 2021 fiscal year to ensure consistency and validity. The COVID-19 pandemic could have had a huge impact on the study findings, either negatively or positively, because the United States was in the process of recovering. The COVID-19 pandemic may have aggravated the workplace conditions that impact health care workers' mental health, which could have influenced the findings (see Vanhaecht et al., 2020). The stress could have affected the quality of care in the hospitals.

I selected the study sample from various private and government-owned hospitals with contrasting access to technical and economic resources, strategic goals, patient populations, and operating cultures. Consequently, using the study findings in other settings with different circumstances will demand adequate caution and adjustments.

Regarding the study's internal validity, I was restricted because the study used data from the CMS Hospital Compare database. To ensure the validity of the analysis results, I assessed the data's normality before determining the relationship between the study variables. Since secondary data were used, it was unfeasible to improve internal validity further. I recognized that self-reporting and recall disparities might have influenced the gathered data. This possible issue was mitigated by accurately recording the collected data and decisions involved during the study and data analysis to ensure adequate reliability of results.

Trochim (2020) noted that statistical conclusion validity entails the relationship between the reasonableness of conclusions relative to the collected data. Statistical conclusion validity threats ensue when the relationships between the study variables are inaccurate (Trochim, 2020). Therefore, ensuring an appropriate statistical power when selecting the study's sample size and testing for normality mitigated the statistical validity threats.

Ethical Procedures

Before conducting the study, I received permission to do so from the Walden University Institutional Review Board. My Walden IRB approval number is 08-22-23-0364638. All the data were sourced from the CMS Hospital Compare database. Since the study did not involve human subjects or contain patient-level secondary data, there were no concerns regarding patient confidentiality. Notably, the secondary data sourced from the databases did not include personal information because it is collected retrospectively and anonymously. I securely stored the collected data in a password-protected flash disk that will be discarded after 5 years, based on federal and Walden University regulations.

<div align="center">

Summary

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I conducted this quantitative study to assess the relationship between hospital efficiency and TPSs for hospitals in Miami, Florida. In this section, I described the study's design and rationale, research population, sampling approach, sample size determination, and the variables' instrumentation and operationalization. It also contained a discussion of the data analysis plan, statistical conclusions, internal and external validity threats, data storage and handling, and ethical considerations. In Section 3, I will

explain the data analysis process and present the results of the study pertaining to the research question and hypotheses.

Section 3: Presentation of the Results and Findings Section

Introduction

In this quantitative study, I evaluated the correlation between hospital efficiency and the TPSs for health care facilities in Miami, Florida. All the sampled hospitals were active participants of the CMS HVBP program and thus reported variables of the study. The HVBP was founded by CMS to reduce resource expenditures and boost performance and patient outcomes. Revere et al. (2021) noted that the program is a pay-for-performance-based strategy that replaces conventional fee-for-service-based payments to hospitals' fines and incentives. Particularly, health care facilities are fined or compensated based on their overall TPSs pursuant to the HVBP program. In the present U.S. health care system, hospital efficiency and TPSs influence the capacity of hospitals to reduce expenditures and enhance clinical outcomes. Considering the significance of these variables, there is a lack of research on the associations between hospital efficiency and TPSs. This study was necessitated by the lack of evidence-based literature regarding the variables, particularly concerning hospitals in Miami, Florida. Data were analyzed using Pearson's correlation analysis in SPSS software. The following research question and hypotheses guided this study:

Research Question: Based on CMS Hospital Compare data from January 1, 2021, to December 31, 2021, what is the relationship/correlation between hospital efficiency and TPSs for hospitals in Miami, Florida, when controlling for hospital ownership type?

H_0: There is no significant relationship/correlation between hospital

efficiency and TPSs for hospitals in Miami, Florida, when controlling for

hospital ownership type.

H_a: There is a significant relationship/correlation between hospital

efficiency and TPSs for hospitals in Miami, Florida, when controlling for

hospital ownership type.

Data Collection of Secondary Data Set

After receiving approval from the Walden University Institutional Review Board,

I accessed the CMS Hospital Compare data, including data on hospital efficiency,

hospital ownership type, and TPSs for the fiscal year of 2021. Responses and rate

of recruitment in this scenario did not apply to the CMS Hospital Compare

database because the data were not survey-based. Particularly, the database lacked any

processes for ensuring data quality. Through the data collection procedures, I found 157

hospitals in Florida that participate in the CMS HVBP initiative. The sample size was

reduced to 16 to focus on Miami hospitals with pertinent efficiency and total performance

information for the fiscal year of 2021. For correlational analyses, I uploaded the CSV

Excel data to SPSS Version 1.0.0.1406. Based the second section of the data

collection plan, the application of the secondary data notable disparity involved a small

number of hospitals in Miami ($N = 16$) participating in the HVBP initiative. The other

disparity in the use of the secondary data was that 10 of the 16 hospitals participating in

the HVBP program were nonprofit privately owned, one was for-profit physician owned,

and five were for-profit government owned. Hospital ownership type was coded as

nonprofit privately-owned, for-profit physician-owned, and for-profit government-owned.

Descriptive and Organizational Sample Characteristics

The secondary data for this research study consisted of data from 16 Miami-area hospitals that participate in the HVBP program. All 16 of these hospitals had relevant data in the CMS Hospital Compare database concerning the variables of the study. In Table 1, the selected hospitals and their associated efficiency and TPSs for the fiscal year of 2021 are presented.

Table 1

Efficiency and TPSs of Sampled Hospitals (2021)

Hospital name	Hospital ownership type	Efficiency scores	Total Performance Scores
Baptist Hospital of Miami	Private, not-for-profit	1.02	25.75
Jackson Memorial Hospital	Private, not-for-profit	1.05	23.75
North Shore Medical Center	Private, not-for-profit	1.10	33.25
Mount Sinai Medical Center	Private, not-for-profit	1.04	36.50
Larkin Community Hospital Palm Springs Campus	Government, for-profit	1.23	25.96
Hialeah Hospital	Private, not-for-profit	1.16	35.75
Homestead Hospital	Private, not-for-profit	1.03	33.375
Aventura Hospital and Medical Center	Private, not-for-profit	1.04	29.00
South Miami Hospital	Private, not-for-profit	1.01	22.25
Larkin Community Hospital	Government, for-profit	1.08	52.22
Coral Gables Hospital	Government, for-profit	1.15	38.75
Palmetto General Hospital	Government, for-profit	1.12	25.00
Westchester General Hospital	Physician, for-profit	1.35	60.83
Doctors Hospital	Private, not-for-profit	1.06	43.00
West Kendall Baptist Hospital	Private, not-for-profit	.98	37.33
Kendall Regional Medical Center	Government, for-profit	1.05	25.50

Not-for-profit hospitals under private ownership accounted for approximately 62.5% of the sample, for-profit hospitals under government ownership accounted for about 31.25% of the sample, and for-profit hospitals under private ownership represented 6.25% of the sample. The efficiency scores ranged from 1.0 to 1.2, while the TPSs ranged from 22 to 60 in the 2021 fiscal year.

The research study included only Miami area hospitals ($N = 16$) because the research question focused specifically on Miami. Since each of the 16 facilities participated in the HVBP program, they sufficiently represented all other hospitals participating in the CMS HVBP initiative throughout Miami.

Results

The study was guided by one research question that required correlational analyses to answer. I employed Pearson's correlation to examine the relationship between hospital efficiency and TPSs for health care facilities in Miami, Florida. The variables were also tested for normal distribution before conducting the correlational analyses. In this subsection, I provide the assumptions of the analyses and the findings.

Before analysis, I tested for the normality of data using a Shapiro-Wilk test for bivariate normality. According to Gupta et al. (2019), if the population sample size is less than or equal to 50, the Shapiro-Wilk test is a suitable approach to determine the normality of variables. According to the results, the variables were normally distributed (Shapiro-Wilk $= 0.813$; $p = 0.004$), as seen in Table 2. The scatter plots in Figure 1 additionally verified the normal distribution of the research's variables.

Figure 1

Scatter Plot and Density Histograms for Hospital Efficiency and TPS Variable
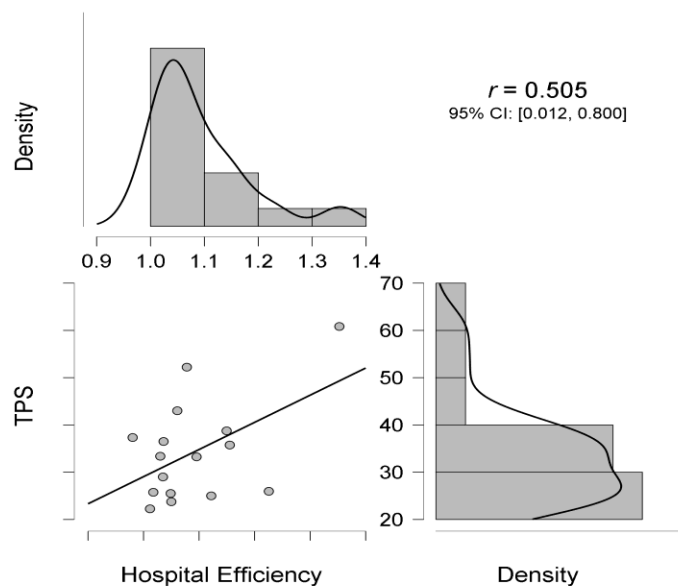
The efficiency scores ranged from 1.0 to 1.2 with a mean of 1.09 ($SD = 0.94$).

Efficiency is scored on a scale of 0 to 2, with 0 being the poorest and 2 being the best.

TPSs ranged from 22 to 60, with a mean of 34.26 ($SD = 10.74$). TPS is scored on a scale

of 1 to 100, with 100 being the best. Table 2 shows the average efficiency scores and

TPSs by hospital ownership type in Miami, Florida. The tables allow for a comparison of

these metrics across different ownership categories, providing insights into potential

variations in performance based on ownership type.

Table 2

Mean Efficiency Scores and TPSs by Hospital Ownership Type

Hospital ownership type	Mean efficiency score	Mean TPS
Non-profit private owned	1.05	31.99
For-profit physician owned	1.35	60.83
For-profit government owned	1.34	33.49

I ran a partial correlation to determine the relationship between hospital efficiency and TPSs while controlling for hospital ownership type. There was a slight positive correlation between hospital efficiency and TPSs when controlling for hospital ownership type, which was not statistically significant, $r(13) = -.229$, $N = 16$, p = .411. However, zero-order correlations showed that there was a statistically significant, positive correlation between hospital efficiency and TPSs ($r(14) = .505$, $n = 16$, $p = .046$), indicating that hospital ownership type had very little influence in controlling for the relationship between hospital efficiency and TPS (see Table 3).

Table 3

Partial Correlation for Efficiency and TPS Controlling for Hospital Ownership Type

Correlations			TPS	Efficiency scores	Hospital ownership type
Control variables					
-none-[a]	TPS	Correlation	1.00	.51	.49
		Significance (2-tailed)	.	.05	.06
		df	0	14	14
	Efficiency scores	Correlation	.505	1.0	.78
		Significance (2-tailed)	.046	.	<.001
		df	14	0	14
	Hospital ownership type	Correlation	.49	.78	1.00
		Significance (2-tailed)	.06	<.001	.
		df	14	14	0
Hospital ownership type	TPS	Correlation	1.00	.23	
		Significance (2-tailed)	.	.41	
		df	0	13	
	Efficiency scores	Correlation	.23	1.00	
		Significance (2-tailed)	.41		
		df	13	0	

Summary

The data were normally distributed in the sample. Through the Shapiro-Wilk test and scatter plots, I confirmed the bivariate normality of the variables in question prior to correlational analysis. The analyses revealed that the variable distributions were normal and random. The descriptive statistics showed some key information about the variables under investigation. The variable TPS had a mean of 34.26 (*SD* = 10.74), indicating a

below-average performance score for the hospitals in Miami since TPS is scored on a scale of 0–100. Efficiency scores had a mean of 1.09 (*SD* = 0.094). Based on a scale from 0 to 2, it is important to consider the specific context and interpretation of the efficiency metric being used. In this case, a score of 1.09 suggests that the Miami hospitals in the sample have an average efficiency level. However, without further information about the benchmark or national average for efficiency scores, it is difficult to make a definitive judgment on whether 1.09 is considered efficient.

I ran a partial correlation to determine the relationship between hospital efficiency and TPSs while controlling for hospital ownership type. There was a slight positive correlation between hospital efficiency and TPSs when controlling for hospital ownership type, which was not statistically significant, $r(13) = -.229$, $N = 16$, p = .411. However, zero-order correlations showed that there was a statistically significant, positive correlation between hospital efficiency and TPSs ($r(14) = .505$, $N = 16$, p = .046), indicating that hospital ownership type had very little influence in controlling for the relationship between hospital efficiency and TPSs.

In summary, the correlation analysis indicated a significant positive relationship between efficiency scores and TPSs that is not affected by hospital ownership type. It is important to consider the context and research question of the study when interpreting these findings fully.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

In this study, I used secondary data from the CMS Hospital Compare database to examine the correlation between hospital efficiency and TPSs. The initial sample size had 157 hospitals in Florida that participated in the CMS HVBP initiative; however, after data cleansing, the sample size included in this study was reduced to 16 hospitals in Miami, Florida with variable research data. As stated by Tipton et al. (2016), small sample sizes in research studies compromise the ability to generalize the findings. Analysis of the data revealed a significant association between hospital efficacy and TPSs in Miami, Florida hospitals.

Interpretation of the Results

In the United States, hospitals are incentivized to improve efficacy, decrease expenses, and enhance TPSs. The primary objective of this quantitative study was to determine the relationship between hospital efficiency and TPSs for purposefully selected hospitals in Miami, Florida. The descriptive statistics indicated that the efficiency scores had a mean of 1.09, suggesting an average level of efficiency among the Miami hospitals in the sample. However, without a benchmark or industry standards for comparison, it was difficult to determine the significance of this score. The TPSs had a mean of 34.26, indicating a below-average performance score. In contrast, Zhao et al. (2015) reported a mean TPS of 55.46, which is higher than the current study's mean TPS of 34.26. This indicates that the hospitals in the current study had a below-average performance score compared to the hospitals in Zhao et al.'s study.

Moving on to the correlation analysis, I calculated several correlations to examine the relationships between the variables. There was a significant positive correlation ($r = 0.505$, $p = 0.046$) between TPSs and efficiency scores. This indicates that higher efficiency scores are associated with higher TPSs. However, when controlling for hospital ownership type, the correlation was positive ($r = 0.486$) but not statistically significant ($p = 0.056$). This finding suggests that although there might be a relationship between TPSs and efficiency, it is not affected by hospital ownership type, which implies that there is a strong positive association between efficiency scores and a specific type of hospital ownership. Further investigation into the nature of this relationship would be warranted. Previous studies have been conducted on the factors influencing hospital efficiency and TPSs. For instance, Spaulding et al. (2020) found that efficiency in hospitals had no significant effect on TPSs. In another study, Zhao et al. (2015) examined the association between hospital efficiency, hospital characteristics, and performance scores in the context of the Medicare HVBP program in the United States. Their findings indicated that less efficient hospitals tended to have lower patient satisfaction scores and TPSs compared to more efficient hospitals. Hospital size, ownership, and payer mix were also identified as significant factors influencing HVBP performance scores (Zhao et al., 2015). These results are consistent with the results of the current study that also showed a positive correlation between efficiency scores and TPSs. However, I did not find a statistically significant relationship when controlling for hospital ownership type, whereas Zhao et al. found significant impacts of hospital size, ownership, and payer mix on performance scores.

Contrary to the previous literature findings regarding the effect of hospital type of ownership suggesting poor performance for not-for-profit hospitals (Chatfield, 2016), the data analyzed in the current study indicated that nonprofit hospitals under private ownership in Miami have significantly higher TPSs than for-profit hospitals. Freedman and Lin (2018) found that nonprofit hospitals were less likely to offer unprofitable health care services in competitive markets. Nonprofit hospitals were also noted to have a higher ratio of non-care provider staff, which can contribute to improved health care quality and patient satisfaction outcomes (Hansen & Sundaram, 2018). Additionally, Hansen and Sundaram (2018) demonstrated that nonprofit hospitals were more likely to implement health management interventions compared to private and government-owned hospitals. These findings do not align with the results of the current study that showed that ownership types had no effect on the relationship between efficiency and TPSs. Nonprofit hospitals' focus on mission-driven care and their investment in non-care provider staff and health management interventions could contribute to more efficient and effective health care delivery.

Additionally, the correlation between hospital efficiency and TPSs was investigated in several studies that utilized data sets other than those from the CMS Hospital Compare. The current study findings may generate new insights into the relationship between hospital efficiency and TPSs by using these data points appropriately.

The current study is also relevant to the literature on health care inefficiencies in the United States. For instance, Haley et al. (2017) highlighted that approximately 98,000

patients out of the 1 million individuals injured died due to medical errors in 2000. Such inefficiencies contribute to high costs, poor health care outcomes, and negative impacts on patients' well-being. The current study results shed light on the factors that influence hospital performance in Miami, Florida. By considering ownership type as a controlling factor, the current study analysis provides a deeper understanding of how different types of hospitals may exhibit varying levels of efficiency and, consequently, different TPSs. The significant effect of hospital ownership type on TPSs implies that the ownership structure plays a role in health care efficiency and, by extension, the potential for health care inefficiencies. This finding suggests that hospitals with different ownership types may have different levels of efficiency and, consequently, varying TPSs. Therefore, addressing ownership-related inefficiencies may be crucial in improving overall health care performance and mitigating the issues discussed in the literature review. By identifying the relationship between efficiency and TPSs, the current study contributes to the understanding of health care inefficiencies and provides valuable insights for policymakers, health care administrators, and researchers in Miami, Florida, and potentially beyond. The results of the current study emphasize the need to address inefficiencies in hospital operations and management, with a focus on ownership-related factors, to enhance health care outcomes, reduce costs, and improve patient experiences.

The findings of this study showed a significant and positive relationship between hospital efficiency and TPSs that were not affected by ownership type, in contrast to the findings of many other studies. The contrasting findings are due to the implementation of precise and up-to-date information from the CMS Hospital Compare database. Pearson's

correlation between hospital efficiency and TPSs for hospitals in Miami, Florida was

significantly positive, which was confirmed by the correlation coefficient $r = 0.505$ and

the 95% confidence interval $p = 0.046$. The positive r value implies a positive correlation

between hospital efficiency and TPSs, indicating that as hospital efficiency improves, so

do TPSs. Because the p-value (0.046) is less than 0.05, the result was of statistical

significance. This finding indicated that a corresponding rise in TPS is associated with an

increase in hospital efficiency. To address the research question, this study adopted the

alternative hypothesis to confirm the existence of a statistically significant relationship

between hospital efficiency and TPSs.

According to Binder et al. (2021), the Donabedian theoretical framework is used

to assess health care efficacy in terms of quality and the services offered. According to

the framework, hospital outcomes, processes, and structures provide vital information

regarding health care. General staff, finances, hospital facilities, and hospital equipment

comprise hospital structures that reflect the health care setting, while transactions

engaging patients and health practitioners are included in processes and outcomes refer to

how hospitals influence the health experiences of people and their neighborhoods.

Applying the Donabedian model to the current study, the variables included hospital

processes and outcomes to derive important information and data to contribute to the

literature. Using the model, the delivery of health care services can be enhanced by

analyzing quality-influencing factors (Binder et al., 2020). This study was supported by

use of the model through its framework that allowed for the evaluation of health care

quality. I applied the three components of the model (i.e., structure, process, and

outcomes) in analyzing how variations in hospital structure, clinical processes, and patient outcomes impact overall performance. By applying the Donabedian model, I gained insights into how efficiency relates to TPSs, helping identify areas for improvement and enhancing the understanding of healthcare quality in Miami hospitals.

Additionally, the funding system of health care and personnel had an inherent effect on hospital efficiency based on the study. By establishing that hospital efficiency positively correlates with TPSs, this study was supported by the Donabedian framework, linking improved efficiency within health care facilities to enhanced performance, which hopefully leads to quality care for the patients.

Limitations of the Study

This study had several limitations despite providing novel insights pertaining to the correlation between hospital efficiency and total hospital performance scores while controlling for ownership type for hospitals in Miami, Florida. Because the study only focused on 16 Miami hospitals, the sample size was small, and the results cannot be generalized to hospitals in other areas. However, since the entire population of hospitals in Miami was used rather than employing sampling, there was no need to generalize within Miami.

I incorporated secondary data from the CMS Hospital Compare database and lacked the means to verify the data's quality and accuracy but assumed that the data were correct. Inaccurate data easily compromised the credibility of the results and generalizability. Since I employed a quantitative correlational methodology, hospital administrators and qualitative experiences and perspectives of patients were

not available. Qualitative experiences from both patients and health care providers in the hospitals and concepts could have provided valuable insights into the results of the study, thereby enhancing their value.

Recommendations for Further Studies

In this study, I evaluated the relationship between hospital efficiency and TPSs in hospitals in Miami, Florida. The findings showed a significant relationship between hospital efficacy and TPSs, but the hospital ownership type had no effect on this relationship. These results are significant and fill the gap in the literature concerning the correlation between the variables; however, these results were derived from a small number of health care facilities in Miami, Florida. To see if the results generalize outside of Miami, future research should examine an extensive geographical region that includes numerous hospitals in the United States. Furthermore, since only secondary data were applied in this study, future studies using additional data or prospective methods could help support the current study results. The collection of further qualitative data from hospital staff members and patients to provide additional evidence for the reported findings is recommended. In future studies, researchers should utilize a larger sample size because the results of the current study were based on a sample of 16 hospitals and may not be applicable to larger numbers of participants.

It is crucial for future research to examine the relationship between staffing levels and total hospital performance. Staffing levels, particularly nurse-to-patient ratios and the presence of non-care provider staff, have been identified as critical factors influencing health care quality and patient outcomes. Therefore, further investigation into the impact

of staffing levels on total hospital performance would provide valuable insights for health care administrators and policymakers. Future studies could employ a larger sample size and incorporate staffing data from various hospitals across different regions to enhance the generalizability of findings. Moreover, combining quantitative data on staffing levels with qualitative perspectives from hospital staff members and patients would provide a comprehensive understanding of the intricate dynamics between staffing and total hospital performance. By conducting research that encompasses multiple variables and adopting rigorous research designs, researchers can contribute to the development of evidence-based strategies to optimize staffing levels and enhance overall hospital performance.

Implications for Professional Practice and Social Change

Health care administration professionals have an ethical responsibility and duty to enhance the quality, safety, and effectiveness of health care delivery. In their management, problem-solving, and executive abilities, health care administrators must advocate for evidence-based process enhancements, promoting sustainable operations while conserving financial resources and enhancing patient health outcomes. The findings of this study provide health care administrators with useful information and recommendations regarding areas to prioritize to enhance hospital performance. I observed a significant relationship between hospital efficacy and TPSs; consequently, health care professionals can employ the results of the study for the development of measures that directly enhance TPSs, such as competitive benchmarking and a balanced scorecard. The implications of higher performance scores being linked to higher incentive

payments and fewer financial penalties for hospitals are significant. Hospitals have a strong financial incentive to prioritize and invest in initiatives that enhance their TPS, which can lead to improved financial sustainability because higher TPS results in increased incentive payments and reduced penalties, providing hospitals with more resources to invest in quality improvement efforts. Hospitals can also strategically allocate their resources and make informed decisions based on the components of TPS that have the most impact on incentives. This promotes a data-driven approach to decision making and encourages hospitals to focus on delivering high-quality, value-based care. Finally, the linkage between TPSs and financial incentives reinforces accountability and transparency in health care delivery, driving hospitals to report accurate data and prioritize quality improvement to achieve positive patient outcomes. Comparing the results of the current study to the extant body of literature will promote more studies that will result in sufficient health care system enhancements and increased performance. Discussions founded on empirical evidence are essential for hospitals pursuing sustainability, lowering costs, and improving waste management to enhance the quality of care provided.

The objective of social change in this study was to improve communities by enhancing outcomes for patients by improving the quality of care provided. Managers in U.S. health care is committed to enhancing efficiency and TPSs. Because they inform health care executives about the association between hospital efficiency and TPSs, the results of the current study present an important opportunity for social transformation. Policymakers and health care executives can use the results of this study to invest in the

right areas to increase the TPSs of hospitals. This study can aid health care executives in emphasizing hospital efficacy to improve TPSs.

Hospitals can also use the findings of the study, which demonstrate a significant relationship between efficiency, TPSs, and overall hospital performance, to promote their high efficiency and TPS to patients. By highlighting their commitment to efficient and effective care delivery, hospitals can attract patients who value streamlined processes and quality outcomes. Emphasizing a high TPS showcases the hospital's dedication to delivering exceptional care across various performance measures, such as patient satisfaction and safety. This information can instill confidence in patients and differentiate the hospital in a competitive health care landscape, promoting patient engagement and informed decision making. However, the COVID-19 pandemic-related changes and potential nursing shortages have significant implications for hospitals. With limited nursing resources, hospitals must prioritize efficiency in their operations to ensure timely and effective care delivery. Retaining experienced nurses and supporting their well-being becomes crucial during nursing shortages. Technology and automation can play a role in augmenting nursing care and improving efficiency. Collaborative care models that involve interdisciplinary teamwork can also help optimize the delivery of care. Overall, hospitals need to adapt to these challenges by focusing on efficiency, nurse retention, technology utilization, and collaborative care models to maintain quality patient care amidst COVID-19 pandemic-related changes and nursing shortages.

Conclusion

Patients and their communities are burdened by rising health care costs in the United States (Anderlini, 2018). Consequently, there is an urgent need to focus on factors affecting health care expenses and enhancing patient outcomes. In the current study, I examined the relationship between hospital efficacy and TPSs in Miami, Florida hospitals. Some previous research studies showed a negative relationship between hospital efficacy and TPSs, whereas other research showed no correlation. In the present study, I employed a quantitative correlational methodology to examine the variables and found a significant relationship between hospital efficiency and TPSs ($r = 0.505$; $p = 0.046$). Policymakers and executives in the health care sector can use the results of this study to improve hospital efficiency and TPSs.

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