Walden University

College of Management and Human Potential

This is to certify that the doctoral study by

Amy C. Woodruff

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Walden University
2023

Abstract

The Relationship between Doctor Communication and Patient Satisfaction in ICUs and

PCUs

by

Amy Celeste Woodruff

MHA/MSL, Pfeiffer University, 2020

BS-HSM, East Carolina University, 2018

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

Walden University

November, 2023

Abstract

The relationship between doctor communication and patient satisfaction is understudied, and there is little information concerning Intensive Care Units (ICUs) and Progressive Care Units (PCUs), where doctors interact with more complex patients. Effective doctor-patient communication improves patient satisfaction and hospital ratings from the Centers for Medicare and Medicaid Services (CMS) Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). Medicare's Hospital Value-Based Purchasing (VBP) Program evaluates and reimburses hospitals based on HCAHPS patient satisfaction surveys. The purpose of this retrospective quasi-experimental quantitative study was to examine the relationship between doctor communication and patient satisfaction of ICUs and PCUs in five central and eastern hospitals of a large healthcare system located in the Southeastern United States. The Donabedian structure-process-outcome theoretical framework was used in this study where structural factors (ICUs and PCUs) affect care processes (doctor communication), which affect health status outcomes (patient satisfaction). An ordinal logistic regression analysis of two research questions revealed a statistically significant relationship between doctor communication performance and patient satisfaction as measured by HCAHPS for ICUs and PCUs. Recommendations for future research include expanding into all hospital-based units and other hospital-based physician groups. This study may influence hospital best practices and enhance doctor communication tools to improve patient satisfaction. This study can potentially affect positive social change by enhancing the knowledge about doctor communication and its relationship to patient satisfaction.

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Dedication

I am forever grateful to the "Cloud of Witnesses" (Hebrews 12:1) that God so graciously placed within my path to help faithfully teach and guide me throughout my life's journey, all of which have played a vital part in becoming who I am today.

In memory of William Rayvon Gilmore (Papa): you always taught me that "I can do all things through Christ who strengthens me." (Philippians 4:13). That was your life verse. From a very young age, you always told me I would be a doctor someday; well, Papa, I have finally made our dreams come true. You taught me to fight for what I believe in, and that it is okay to stand out from the crowd because that makes us unique and builds our character. I will never forget the countless powerful stories of wisdom, encouragement, and of course, the many amusing stories of your life. You always had a way of throwing in humor, and your hilarity certainly still sparkles even though you now watch over us from Heaven.

In memory of William Rayvon Gilmore Jr. (Daddy): although you were called Home to Heaven when I was just shy of one year old, you have remained a constant presence throughout my life through the people who knew you and loved you best. God appointed you as a governing authority to protect and serve our communities (Romans 13:1). You have taught me that strength is always found by trusting Jesus (Isaiah 12:2), and there is no obstacle that I will ever face alone (Isaiah 41:10, Psalm 56:8). The circumstances surrounding your death has taught me that justice is worth fighting for; and daddy, we will continue to fight because "Blessed be the Lord my Rock, Who trains my hands for war, And my fingers for battle" (Psalm 144:1-2).

Nola Mae Gilmore (Mema), you have always been the one who could calm any situation – my "go-to" person when I needed prayers, a spiritual leader throughout my life – and you will always hold a special place in my heart. Even through every adversity you have faced, the unwavering strength and love that consumes you only validate that you have always been a warrior for God (Psalm 15:1-5). You have taught me to stay strong, let my voice be heard, stand firm in all situations, love without boundaries, and always keep God at the center of my life. Mema, you always have been an encourager to others when faced with difficulties and a guiding light for those who need it. I am forever grateful for your steadfast prayers over my life. I love you all the way to Florida!

Michael "Mike" Arthur (Dad), I just want to say "Thank You"! Thank you for choosing me as your daughter. Thank you for your unwavering love, countless hours of critical and meaningful conversations, and your constructive criticism when I needed it. Thank you for the many prayers you have prayed over my life and the lives of my precious children. Thank you for being a role model, always supporting me, and being a shoulder to lean on. Thank you for leading our family with strength, compassion, love, and prayers. But, most importantly, Thank You for your friendship and unconditional love you have always given. Thank you for being my Dad!

Christopher "Chris" Gilmore, between the *I'm not touching you*'s, the constantly calling my name while I'm trying to perform the My Little Teapot song and show, the stealing of my spot beside Mema at bedtime, the holding me down and tickling me till I cry, and to all the goofy and silly things you did (and still do) to make me laugh; you annoyed and aggravated me through our whole childhood…LOL! But I wouldn't have it

any other way, and I am so blessed that God chose you to be my brother! You have always been there for me, supported me, fought for me, and protected me. The links we form with our siblings are among the most significant in our lives; they are the kind of attachments we experience first and become profoundly ingrained as we grow up. Siblings teach us important skills for navigating relationships, discovering our identity, and understanding how to form attachments to others. As my only sibling and also my older brother, the bond we share is one-of-a-kind and cannot be broken. Heroes don't always come wearing fancy capes but carrying a gold heart. You are one of my greatest heroes that I hold so close to my heart. I have always looked up to you and will always cherish the special bond we carry that siblings can only have. I love you, Bubba!

Shane Woodruff, my love, you have been a source of encouragement and strength throughout this journey in more ways than I can count. Thank you – these two little words carry all my respect, love, devotion, and gratitude for you and all that you do to improve my life and our children's lives. You are my best friend, always by my side, believing in and supporting me. The love you show and have for me is like no other (Ephesians 5:25), and I am truly blessed to have found the kind of love that many only hear about in fairytales. There isn't a day when I do not thank God for giving me such an understanding, loving, caring, and devoted husband and life partner.

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have taught me more about myself than you can imagine – the importance of listening, staying grounded in my own values while also staying open to change, patience, humility and sacrifice, the importance of touch and a quiet word, and what great joy feels like! Each of you has such a bright future (Jeremiah 29:11)! Never forget that life is tough, but so are you. And when you face struggles and your faith is challenged, remember that you stand on the Rock of Jesus Christ (Psalm 18:2). Dig your heels in and trust the One who is beneath you (2 Thessalonians 2:15), and the One who is always with you (Joshua 1:9) and will guide you through anything you might face (Isaiah 30:21, Psalm 32:8). I love each of you and I am so proud of the young men you are becoming!

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A special acknowledgment and thank you to my Committee Chairperson, Dr. Donna Clews, and her invaluable patience, not only for her time and commitment to the success of my dissertation but also for her intellectual contributions to my development as a doctor. I also would like to express my gratitude to my Second Committee Member, Dr. Matt Frederiksen-England, for his constructive feedback and guidance that enhanced the achievement and completion of my research study. There are so many other professors who have crossed my path throughout this journey: those who have lifted me up, those who have kept me grounded, those who went the extra mile to ensure my success, and all of those who have inspired me to reach for excellence. I cannot express enough gratitude to everyone who has contributed to my education and success in finally achieving my childhood dream of becoming a doctor!

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Section 1: Foundation of the Study and Literature Review

Patient satisfaction has become increasingly an important and commonly used indicator for measuring quality in healthcare. Patient satisfaction also plays a role in some value-based care reimbursement models, such as the Inpatient Prospective Payment System (IPPS). Patient satisfaction surveys that center on dialogue between doctors and patients have been shown to affect hospitals' financial position (Allenbaugh et al., 2019; Petrullo et al., 2012). Hospital reimbursement under the Hospital Value-Based Purchasing (VBP) Program has been heavily influenced by the Centers for Medicare and Medicaid Services (CMS) Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient satisfaction ratings since 2012. In accordance with the program's rules, reimbursements will increase as hospitals improve their HCAHPS ratings. Thus, poor HCAHPS ratings have adverse effects on hospitals' financial line because HCAHPS scores are linked to hospital reimbursement form Medicare. Poor HCHAPS ratings can also damage a hospitals' reputation with patients and the communities they service because HCAHPS is publicly reported on the CMS Care Compare website. There are currently minimal studies regarding doctor communication performance and its effects on overall patient satisfaction and relationships between them. There are presently no studies specifically focused on residents of within five central and eastern hospitals of a large healthcare system located in the Southeastern U.S. Further, the relationship between doctor communication performance and overall patient satisfaction has not been studied directly within progressive care units (PCUs) or intensive care units (ICUs), where doctors communicate with patients about more

complex medical issues as compared to other inpatient units. This study contributes to positive social change by highlighting doctor communication performance components that improve patient satisfaction and overall hospital ratings as measured by the CMS HCAHPS survey.

In this section, I include background evidence regarding the problem, the problem statement, purpose of the study, research questions and hypotheses, theoretical framework, nature of the study, literature search strategy, and literature review related to key concepts, definitions, assumptions, scope and delimitations, significance, summary, and conclusions.

Background

Patient satisfaction plays an important and vital role in terms of care quality, patient medical compliance, and clinical outcomes, which is directly affected by physician-patient communications (Gessesse et al., 2022). In the U.S., Medicare and other insurers use HCAHPS results to pay hospitals for quality improvement. The CMS published HCAHPS finding on their Care Compare website to help patients choose between institutions. HCAHPS measures are an important and extensively used indicator of care quality that can balance structure, process, and outcome evaluations (Hamid et al., 2022). These surveys can help improve patient satisfaction by identifying and eliminating potential issues and designing new patient-centered policies for strategic improvements. A constant data-driven focus on patient experience metrics can improve patient satisfaction scores as measured by the CMS HCAHPS survey, and other patient safety and quality indicators regarding wait-time or delays in treatment, poor care coordination,

poor communication, or environmental issues as measured by national benchmarks including Leapfrog patient safety scores. (Eamranond et al., 2022).

Poor medical staff communication substantially affects patient satisfaction because it can lead to patients obtaining the improper treatment or procedure, being given incorrect medication, or experiencing delays in crucial tests and treatments, all of which may have a detrimental impact on patient outcomes and a patients trust in the physician's ability to provide proper care (Pelletier et al., 2019). Strengthening communication between patients and their doctors will improve patient medical compliance and treatment outcomes. However, thorough evaluations combining recent studies with patient satisfaction surveys emphasizing open doctor-patient communication are scarce.

Disentangling components that contribute to patients' overall satisfaction with their care are among the key challenges with HCAHPS hospital rankings. According to my extensive literature review, there has been little focus on provider-patient communications and its impact on patient satisfaction. I also found that there is no research on PCUs and ICUs, where doctors communicate with patients about more complex medical issues compared to typical general and medical-surgical inpatient units. Given the breadth of the HCAHPS program, which is administered to a random sample of adult patients admitted to an inpatient unit of a hospital, a more comprehensive review of measures included within the HCAHPS survey would improve healthcare experiences within hospitals, including doctor communication performance and patient satisfaction with care. Still, more research is needed to find effective and generalizable ways to

improve patient satisfaction, as measured by the CMS HCAHPS survey, through improved levels of physician communication.

Patient satisfaction surveys that focus on doctor-patient communications can help hospital financial situations (Allenbaugh et al., 2019; Petrullo et al., 2012). Many hospitals around the U.S. are affected by the IPPS, which accounts for the bulk of Medicare spending on inpatient treatment. Since 2012, HCAHPS patient satisfaction scores have had an effect on how much hospitals are paid through the Hospital VBP Program, because HCAHPS scores are linked to hospital reimbursement form Medicare. Acute care hospitals receive incentive payments from the VBP program tied to the quality of care they deliver as opposed to the amount of services they render. Poor HCHAPS ratings can also damage a hospitals' reputation with patients and the communities they service because HCAHPS is publicly reported on the CMS Care Compare website (Petrullo et al., 2012).

Few studies have examined how communication performance between doctors and patients affects patients' satisfaction and relationships with doctors. Additionally, there have not been any studies explicitly conducted on ICUs or PCUs, nor have there been any studies conducted within the five central and eastern hospitals of a large healthcare system located in the Southeastern U.S.

Problem Statement

As the healthcare industry shifts from a provider- to a consumer-centric model, patient satisfaction has emerged as a major metric for many medical rating tools, including those Medicare uses to determine how much to reimburse hospitals for patient

treatment. Effective communication with patients has been identified as crucial in terms of promoting positive health outcomes and cultivating patient satisfaction (Schnipper et al., 2021). There is a scarcity of systematic reviews that aim to incorporate research results into studies on patient satisfaction involving physician communication.

The effect that physician communication has on patient satisfaction in relation to HCAHPS measures mandated by the CMS related to the HCAHPS questions of "how often did doctors treat you with courtesy and respect?", "how often did doctors listen carefully to you?", and "how often did doctors explain things in a way you could understand?", and overall patient satisfaction as measured by the HCAHPS question of "Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?", have not been adequately researched in relation to ICU and PCU inpatients located within the five central and eastern hospitals of a large healthcare system located in the Southeastern U.S.

Purpose of the Study

This retrospective quasi-experimental quantitative study examined the relationship between the independent variable, doctor communication performance, and dependent variable, patient satisfaction of ICUs and PCUs inpatients located within the five central and eastern hospitals of a large healthcare system in the Southeastern U.S. Although academics have studied the topic, there is little to no published evidence on the relationship between doctor communication performance and patient satisfaction ratings as measured by the HCAHPS question for Rate the Hospital 0-10 in terms of HCAHPS

data or quality of care. Further, there have not been any studies conducted specifically on ICUs or PCUs, nor have there been any studies conducted within the five central and eastern hospitals of a large healthcare system located in the Southeastern U.S.

Research Questions and Hypotheses

This study was guided by two research questions and corresponding hypotheses:

RQ1: Is there a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs?

H_01: There is no statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs.

H_a1: There is a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs.

RQ2: Is there a statistically significant relationship between doctor communication performance overall patient satisfaction rates of PCUs?

H_02: There is no statistically significant relationship between doctor communication performance and overall patient satisfaction rates of PCUs.

H_a2: There is a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of PCUs.

Theoretical Framework

The theoretical foundation that grounded this study was Donabedian's model of healthcare quality assessment for analyzing health services and rating healthcare quality across three dimensions: structure, process, and outcomes. The model of healthcare

quality assessment developed by Donabedian is a widely applicable paradigm for measuring care quality.

The three pillars of Donabedian's model of healthcare quality assessment were crucial to this research project. For the purpose of this study, structure was defined as ICUs and PCUs, process was defined as physician communication, and the outcome was patient satisfaction.

Nature of the Study

I used a retrospective quasi-experimental design to investigate connections between doctor communication performance and patient satisfaction in ICUs the PCUs within five central and eastern hospitals of a large healthcare system located in the Southeastern U.S. A quasi-experimental design was used because this study aims to establish a cause-and-effect relationship between an independent and dependent variable. This was a retrospective study because it included data that occurred in the past during the 2022 calendar year. This research aimed to provide a descriptive analysis of the current state of patient satisfaction as measured by HCAHPS Rate the Hospital 0-10 and investigate how doctor communication as measured by HCAHPS Doctor Communication Performance Domain questions affects ICU and PCU patients' perception of care.

This study was guided by two research questions, which were analyzed using the ordinal logistic regression statistical technique. According to Vetter and Schober (2018), ordinal data are rank-ordered and often based on a numerical scale consisting of a restricted collection of discrete classes or integers. One of the most important features is that answer categories are arranged in ranked order from 0-10, but it is not safe to assume

that gaps between values are the same size. Ordinal data can also be generated via a numeric Likert scale (1 [never] to 4 [always]), which is often used to gauge responder attitudes.

The three independent variable questions listed within the HCAHPS Doctor Communication Performance Domain are recorded as Q5, Q6, and Q7 within the HCAHPS survey, and each question is measured using a four-point Likert scale. The dependent variable was overall patient satisfaction rates as measured by the HCAHPS Rate the Hospital 0-10, which falls under the HCAHPS global performance domain and is listed as Q18 within the HCAHPS survey. Patient satisfaction was defined and measured using the HCAHPS 0-10 global metric, with 0 as the worst and 10 as the best possible score. Patient satisfaction rates were also on an ordinal scale. An ordinal regression analysis was performed to determine the relationship between doctor communication performance and overall patient satisfaction rates for ICUs and PCUs within five central and eastern hospitals of a large healthcare system in the Southeastern U.S.

I had access to HCAHPS survey secondary data hosted on the Press Ganey platform, where I had access to large datasets. Press Ganey is the vendor used by the five central and eastern hospitals of a large healthcare system located in the Southeastern U.S. I searched for the specific central and eastern five hospitals in the Southeastern healthcare system. I refined my search for the HCAHPS Rate the Hospital 0-10 and the Doctor Communication Performance Domain measures, which includes three HCAHPS questions patients are asked to answer when completing the survey. I then filtered data to

isolate the ICUs and PCUs within these five hospitals. Data analysis was completed, and surveys were closed on February 15, 2023; I extracted my research data on February 16, 2023 for calendar year 2022 HCAHPS survey returns.

Literature Search Strategy

I systematically compiled a literature review using scholarly websites via Google Scholar and the Walden University Library. I accessed Thoreau, MedLine, SAGE Journals, BJM Journals, Scopus, JAMA, PubMed, and PubMed Central. Search terms were *patient experience*, *patient perception*, *patient satisfaction*, *patient attitudes*, *communication*, *communication barriers*, *physician communication*, *doctor communication*, *provider communication*, *Hospital Consumer Assessment of Healthcare Providers and Systems*, *HCAHPS*, and *HCAHPS score improvements*. Sourced articles that were used for the literature review were peer-reviewed and published between 2018 and 2022.

Literature Review Related to Key Variables and Concepts

Patient Satisfaction

Hamid et al. (2022) conducted a research study to analyze the degree of patient satisfaction, as measured by the HCAHPS survey, in the inpatient departments of a hospital located in South Kashmir, a subcontinent of India. The researcher defined patient satisfaction as patient experiences involving joy or disappointment as a result of a service's perceived performance or outcome in accordance with his or her expectations. Satisfaction is a function of expectations and perceptions. Patients are unhappy if performance falls short of expectations. They are satisfied if performance meets their

expectations. They are exceedingly satisfied or delighted if performance exceeds

expectations. It is an important and widely used indicator of care quality that can lead to a

balanced evaluation of service structure, process, and outcome. The results of the study

found that 69% of patients assessed their entire experience with a score of 7 or above on

a scale of 1 to 10. Doctors' behavior had the greatest impact on patient satisfaction, with

more than 85% of patients satisfied by professional services rendered by doctors in terms

of care and attentiveness towards them and discussion about clinical conditions and

treatment.

      According to Eamranond et al. (2022), healthcare providers at Saint Francis

Hospital & Medical Center (SFHMC) located in Hartford, Connecticut, have been using

patients' perceptions of their care as a key quality indicator over the past decade from

2010-2019. This study aimed to show how SFHMC became a regional leader in the

patient experience by improving its quality management practices. Cost of care, quality

metrics, and price transparency are gaining ground in terms of the value-based realm of

consumer decision-making. According to Eamranond et al. (2022), better patient

satisfaction is one indicator that hospitals and other medical facilities are succeeding. The

study results showed higher scores than the average of 71% for all Connecticut-based

hospitals and the U.S. average of 72% ($p < 0.001$). SFHMC had the highest score of 83%.

According to the study, a relentless data-driven focus on patient experience metrics,

coupled with accountability at both the local and senior leadership levels, boosted the

HCAHPS measure question of "Recommend the Hospital" (RTH) scores and positively

affected a variety of other patient safety and quality indicators. As a result, polling

hospital patients on their experiences has become an essential part of designing new patient-centered policies. The results of this study can be used to pinpoint potential sources of concern and eradicate them, thereby enhancing the patient experience.

According to Aoki et al. (2020), the U.S. HCAHPS survey is a well-known and widely used survey for assessing patients' satisfaction with hospital inpatient care and thus aimed to develop a Japanese version of the HCAHPS survey. According to the study by Aoki et al. (2022), the Japanese used a different measurement scale than the U.S. for measuring patient satisfaction for its HCAHPS, which was found to have sufficient psychometric properties for gauging patients' satisfaction with hospital inpatient care.. Moreover, the study did have some limitations, such as the response rate to the survey with only 42% of eligible patients responding. Since the hospitals that took part in this study did so willingly, the hospitals in the predefined sample may be more concerned overall with providing high-quality care. In addition, the hospitals that took part in the study differed from those found in the rest of Japan. As a result, it is possible that the hospitals included were not a good cross-section of Japanese hospitals generally. However, the researchers determined the Japanese HCAHPS could be used in Japan for quality improvement based on patient experiences with hospital care as well as health services research.

Patient experience is significant in terms of conveying how patients feel about care they receive within the healthcare system context, which is also connected to providing high-quality care and improving clinical outcomes (Lappe et al., 2020). The CMS also provides hospitals with financial incentives as part of the Hospital VBP

program for improving patient experience, as determined by the HCAHPS. According to the study by Lappe et al. (2020), it is uncertain how the addition of residents and advanced practice clinicians (APCs) to hospitalist-led inpatient teams will affect patient satisfaction as measured by the HCAHPS and Press Ganey surveys for an academic medical center in Utah. This study found no distinctions between resident, APC, and solo hospitalist teams in selecting top box ratings, the highest rating for each HCAHPS survey question, for the Doctor Communication Performance Domain HCAHPS questions. Solo hospitalists received higher marks in three categories: the amount of time doctors spent with patients (4.58 vs. 4.38, $p = 0.050$); the degree to which doctors kept patients informed (4.63 vs. 4.43, $p = 0.047$); and the level of doctors' skill (4.80 vs. 4.63, $p = 0.027$) as compared to hospitalist-APC teams, solo hospitalists were thought to have greater physician skills (4.80 vs. 4.69, $p = 0.042$). Lappe et al. (2022) indicated patients observed within this academic medical center in Utah are more satisfied with doctors on solo hospitalist teams, and physician team structure had no effect on the CMS' VBP incentive payments. Although promising, this study had a number of caveats, including the fact that it was conducted at a single institution and that patients were not uniformly assigned to treatment groups; instead, the majority were given to resident teams, while the minority were sent to a hospitalist working alone. In addition, researchers lacked the ability to regulate contextual factors such as medical diagnosis and treatment that can cloud the result. This study indicated that more investigation is required for precise provider attribution and potential improvements in patient satisfaction surveys.

Patient-Provider Communications

Villalona et al. (2020) state that institutions use patient satisfaction surveys administered by the Press Ganey survey vendor to learn about patients' experiences. Improving patient outcomes while maintaining patient experience quality is a major challenge for healthcare practitioners in both inpatient and outpatient settings. According to a study by Villalona et al (2020), patients from a West Central Florida academic institution expressed confusion about emergency department long wait times, team member responsibilities, employees verifying patient concerns, and the length of time before seeing an emergency department physician. Throughout this trial, all emergency department employees (including physicians) kept continual communication with patients and their families. Simple gestures like employees and doctors introducing themselves and explaining why they are communicating with patients resulted in a pleasant rapport and better patient experiences, resulting in higher patient satisfaction survey scores. The incapacity of patients to understand emergency department protocols dramatically raised the risk of bad experiences while receiving care. Failure to grasp emergency department procedures as a result of limited communication is a key predictor of low patient satisfaction. According to the study's authors, enhancing communication lines may assist patients who have had unfavorable experiences, raising their overall satisfaction with their medical care.

A study by Moslehpour et al. (2010) aimed to discover how doctor communication affects patient satisfaction in government hospitals. The study found a few important factors that affect how satisfied patients are with how their doctors

communicate with them, such as how much time doctors spend with patients, how well doctors communicate with their patients (both verbally and nonverbally), and how well doctors understand their patients' needs. To improve communication between doctors and their patients, this study's researchers recommended looking at both individual doctors and organizational factors. Also, Belasen et al. (2021) investigated how tailored instruction and feedback improved the HCAHPS communication scores of residents and physicians at Sparrow Hospital in East Lansing, Michigan. The researchers compared the mean HCAHPS score of the pre-intervention group (n=485) to the post-intervention group (n=354). This study found an 8.52-point increase in overall HCAHPS rating scores (95% CI: 0.72 to 17.76, P =.08), a 6.06-point increase in doctor communication performance (95% CI: P=.26), a 6.18-point increase in doctor respect (95% CI: P =.29), and a 3.12-point increase in doctor listening (95% CI: P =.56). However, the research did have limitation because the research was conducted within a residency program and did not examine the correlation between physician communication and patient satisfaction.

Pelletier et al. (2019) did a study with patients who were treated at a Swiss academic hospital in Switzerland. They examined the relationships between a number of factors, such as the quality of communication between healthcare providers and patients, the level to which patients' fears or concerns were addressed, the information shared with family members, getting patients ready for discharge, and patient satisfaction. The study discovered that talking to the patient (β =.70) and addressing their fears and worries (β =.06) were both predictors of patient satisfaction. However, the link between being satisfied and communicating with the patient was much stronger than between being

satisfied and managing the patient fears and worries. Overall, the study discovered

doctor communication, addressing fears and concerns, and communicating with the

patient's family members accounted for 83% of a patient's satisfaction, as measured by

the overall rating of the emergency department. However, the study was limited mainly

due to methodological issues and was only conducted in a single hospital (2019). The

study's authors suggested that more research should focus on combining satisfaction data

with data from other sources to find out how doctor-patient communication affects

patient satisfaction while considering individual differences. Future research should

concentrate on combining satisfaction with data from other sources to determine how

communication affects patient satisfaction while controlling for individual differences

and investigate whether the ecological, humanistic, and strictly medical aspects of

satisfaction can be separated.

Communication Models and Methods

Ray and Stargardt (2020) introduced the Swanson caring theory (SCT) as a

framework for hospital HCAHPS improvement initiatives. This diagnostic framework is

not designed to be all-inclusive; instead, it is aimed to assist in making sense of HCAHPS

data in terms of the SCT qualities of compassion, competence, and patient well-being, all

of which need some level of communication. The authors examined methods for showing

alignment between HCAHPS measurements and SCT to encourage higher performance.

The HCAHPS items, particular SCPs, related behavior sub-dimensions, and caring

characteristics are all part of the communication modes and behaviors that gave birth to

the Caring Attribute Diagnostic Model (CADM). This reciprocal model relies on

interacting linkages between these components. The Carolina Care Model (CCM), developed in 2009, is the practical application of Swanson's caring theory (SCT). The goal of CCM is to improve the quality of care provided to patients by encouraging the adoption of a set of measurable behavioral interventions that unite communication practices with their care providers. As a researcher, I find this framework valuable because it employs the Swanson Caring Theory (SCT) as a framework for CCM behavioral interventions in which the attributes of compassion and competence are aligned with the Swanson Caring Processes (SCPs) of knowing and being with, the attributes of competence and belief are aligned with the SCPs of doing for and enabling, and the outcome of the SCP of maintaining belief is client (patient) well-being. All of these features indicate communication and explain how proper communication should occur during the interaction between the parties.

To improve the health outcomes of hospitalized patients, healthcare systems focus on things like health literacy, patient communication, and patient happiness (Allenbaugh et al., 2019). There is a rising recognition of the significance of the patient's experience in healthcare, yet there are few viable strategies for improving patient happiness. To improve the poor levels of patient satisfaction experienced by medicine inpatients at the University of Pittsburgh Medical Center, the researchers focused on improving communication between patients and their doctors and nurses. Findings suggested insufficient bedside communication training was the primary reason for poor performance in this area. A curriculum with a focus on effective communication between medical residents and nurses was developed and tested by the study's authors. Seventy-

six residents in internal medicine and 85 nurses from the medical service took part in 2016. Participants' health literacy knowledge, attitudes, and confidence were surveyed before and after implementing the program's didactics, video demonstrations, and role play. Communication skills were evaluated by direct observation at the bedside both before and after the assessment was completed. Overall, residents and nurses reported a significant improvement in clinical communication skills, and scores on the HCAHPS communication subscale increased somewhat. The discovered curriculum, which emphasizes bedside communication skills, has the potential to be applied in a variety of settings to improve patient satisfaction and experience, making this study relevant.

According to Seiler et al. (2017), to provide high-quality health care, doctors and patients must be able to communicate effectively. This study aimed to determine whether or not a training module may enhance patients' impressions of doctors' communication skills by tracking their evaluations of their experiences in several communication-related domains over time. The researchers designed a comprehensive training program for doctors that includes standardized simulations and structured feedback from doctors to improve specific "etiquette-based" communication skills. In this study, internal medicine hospitalists and residents served as the intervention group, while surgeons served as the control group in a quasi-experimental pre-post design. The HCAHPS survey and the Non-HCAHPS Physician-Specific Patient Experience Survey (NHPPES) were given to patients of hospitalists. The HCAHPS survey was the more comprehensive of the two surveys (NHPPES). Twelve-hundred-and-eight medical professionals tried out this simulated workout. Responses from 5020 patients were analyzed in the HCAHPS survey

data, whereas 1990 patients were evaluated in the NHPPES survey data. The intercept

shift, or the degree of change from pre-intervention percent "always" responses, on the

HCAHPS questions of doctors "treating patients with courtesy," "explaining things in a

way patients could understand," and "overall teamwork," did not differ significantly

between surgical control and hospitalist intervention patients. Adjusted intercept shifts

for "keeping patient informed" (9.9%, P = 0.019), "overall teamwork" (11%, P = 0.037),

and "using terms the patient could comprehend" (14.8%, P = 0.001) all showed

statistically significant increases after the intervention. Using a purposeful practice

framework, a simulation-based coaching strategy for physicians on communication

focusing on particular "etiquette-based" communication practices was not linked to

substantially higher HCAHPS physician communication patient experience ratings. This

research has crucial implications since it suggests future studies might shed light on how

this model affects patients' perceptions of physician communication in connection to

certain physicians' styles or habits of interaction with patients.

There are significant variations in word-of-mouth (WOM) behavior in the

healthcare sector based on the nature of communication and the physicians' perceptions

of their own influence (Martin, 2017b). The process through which a doctor's

communication performance turns into recommendations is an underexplored area of

study. A study by Mehra et al. (2021) investigated the role of perceived influence and

patient satisfaction in mediating the relationship between a doctor's communication

performance and the patient's quality of care. The three largest cities in India that

participated in this study were Lucknow, Kanpur, and New Delhi. The doctors' sample

consisted of family physicians (75.4%) and specialists (24.6%). The results indicate that mediation through influence is substantial (CI = [0.70,1.20]), whereas mediation via satisfaction is marginally significant (p = 0.10, CI = [0.001, 0.21]).

Furthermore, the connection between doctor-patient communication and patient recommendation is significantly mediated by the two mediators in a serial fashion (CI = [0.21, 0.50]). Positive physician recommendations may be attributed to effective communication with patients, and the patients' sense of agency and satisfaction has been shown to play a significant role. Patients' perspectives and overall satisfaction may differ from those expressed in the study because of the study sample's concentrated on participants from North India. Furthermore, the independent variables in this study did not include areas such as respect and courteousness to the patient during communication interactions, attentive listening to the patient or explaining in a way that the patient understands.

<div align="center">**Definitions**</div>

HCAHPS Survey

According to the U.S. Centers for Medicare and Medicaid Services (2021), HCAHPS is the first comprehensive and widely disseminated evaluation of hospital patients' perspectives. The HCAHPS survey, also called the CAHPS Hospital Survey, can measure patients' perspectives of their hospital stays. Although many hospitals have collected patient satisfaction data for internal use, it was previously impossible to make valid comparisons between hospitals on a local, regional, or national scale due to the absence of a uniform method for collecting and publicly reporting data on patients'

experiences with care. The major objective of the HCAHPS survey is to collect information from patients' perspectives on their care, which can then be utilized to establish fair and useful comparisons between hospitals on patient- and family-focused topics. In addition, when survey results are made public, hospitals receive added impetus to improve service quality. Furthermore, public reporting enhances the accountability of the health care industry by making it easier to determine how efficiently taxpayer funds are spent at individual hospitals. In light of these objectives, the HCAHPS Project Team and CMS have made tremendous efforts to ensure the survey's reliability, usefulness, and practicability.

Communication Performance with Doctors

The independent variables within my study were the three HCAHPS questions listed within the Communication with Doctor's Performance Domain, which asks "how often did doctors treat you with courtesy and respect?", "how often did doctors listen carefully to you?", and "how often did doctors explain things in a way you could understand?" The three questions are listed as Q5, Q6, and Q7 within the HCAHPS survey, and each question is measured using a 4-point Likert scale with 4 = always, 3 = usually, 2 = sometimes, and 1 = never.

The three HCAHPS survey questions within the communication with doctor's performance domain make up what the CMS refers to as a composite score. The composite score combines the results from the three aforementioned questions. Composite scores are calculated into top, middle, and bottom box categories. According to CMS (2022), top box scores are defined as the percentage of survey respondents who

responded always, and bottom box scores are the percentage of survey respondents who offered the least favorable response of sometimes and never. The middle box score is calculated as the percentage of survey respondents who answered usually on the HCAHPS survey.

Patient Satisfaction

The dependent variable within my study was overall patient satisfaction. For this study, patient satisfaction was defined and measured by the HCAHPS survey question for the overall rating of the hospital 0-10 Global Metric, with "0" as the worst hospital rating and "10" as the best hospital rating. The overall rating of the hospital for patient satisfaction is on an ordinal scale and asks, "Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?",. This question falls under the Global Performance Domain and is listed as Q18 within the HCAHPS survey.

ICU

Patients who are critically ill are often treated in the hospital's ICUs, which feature modern medical technology and round-the-clock medical staff (Ervin et al., 2018). Patients in the ICU receive care from a team of doctors, nurses, and specialists who are all highly trained in their respective fields and able to provide critical care for a wide range of medical, surgical, and trauma-related problems. ICU patients are provided 24-hour doctor presence within the unit due to the critical medical aspect these patients are facing.

PCU

Hospitals in the U.S. are increasingly likely to have a PCU. With the purpose of delivering quick, high-quality, and safe treatment, these units are frequently utilized to bridge the gap between ICU and medical or surgical units (Miller & Hill, 2018). Patients who are admitted to PCU have a number of characteristics in common, including the need for intensive nursing care and a high level of monitoring by doctors.

Doctors

A hospitalist is a board-certified physician, usually in internal medicine, who specializes in treating patients currently being treated inside hospitals (Santhosh & Sewell, 2020). Hospitalists are medical professionals who specialize in providing round-the-clock care to seriously ill patients who are confined to an inpatient setting. They are responsible for coordinating patients' care while in the hospital and ensuring that all of the doctors involved in a patient's treatment communicate with one another (Santhosh & Sewell, 2020; Palabindala & Abdul, 2018). During a patient's stay in the hospital, the patient's primary care physician is often contacted twice by the hospitalist: once when the patient is first admitted and again just before the patient is discharged (Santhosh & Sewell, 2020). Also, hospitalists have greater availability to meet with patients' family members, follow up on test results, respond to inquiries from nurses, and address any concerns that may emerge on the premises.

An intensivist is a board-certified physician, most commonly in internal medicine, who specializes in the care of critically ill patients (Santhosh & Sewell, 2020). Intensivists typically work in critical care units, such as ICUs and PCUs, where patients

receive treatment. Intensivists need to be knowledgeable about a wide variety of conditions typical of critically sick patients as well as the operations performed in the intensive care setting. These doctors supervise most of these patients' medical care and make choices regarding their treatment, tests, procedures, consultations, and so on (Santhosh & Sewell, 2020). According to Sodhi & Chanchalani (2022), the majority of hospitals now require fully committed and trained intensivists for the ICU to function well. Full-time critical care physicians improve patient survival and ensure that the units run smoothly.

Critically ill patients represent a dynamic, ever-changing paradigm that necessitates persistent surveillance, machine monitoring, and prompt intervention (Sodhi & Chanchalani, 2022). Hospitalists and intensivists provide a significantly higher rate of critical care and serve as the primary physicians for ICU and PCU patients within the healthcare system for this study. For the purpose of this study, doctors referred to the hospitalists and intensivists who provide the direction of the care for the patients admitted within the ICU and PCU inpatient units of the hospitals. Patients treated in the emergency departments or an inpatient medical/surgical unit who have become critically ill are moved into the ICU or PCU, where the hospitalist and intensivist teams manage round-the-clock patient care (Santhosh & Sewell, 2020).

Assumptions

In this study, I assumed patients' feedback on the HCAHPS survey was true. I assumed the patients described their perception of care with how often doctors communicated with them honestly without fear of repercussions from their provider. I

assumed the patients described their perception of overall care during their hospital stay honestly.

Scope and Delimitations

I aimed to study the relationship between doctor communication performance and patient satisfaction of inpatients within the progressive care units and intensive care units from five hospitals positioned within the central-eastern districts of the healthcare system located in the Southeastern United States for the calendar year 2022. Secondary data were obtained from the Press Ganey vendor tool used across the healthcare system, where HCAHPS survey results are reported within the database and on the CMS Hospital Compare website. Data was abstracted from the healthcare system's hospitals serving the Central and Eastern regions, spanning six counties. Only HCAHPS data from the calendar year 2022 was analyzed.

Delimitations are the characteristics that limit the scope and describe the boundaries of the research. The healthcare system consists of 13 hospital campuses across one state, where only five of the healthcare facilities are located within the central-eastern districts that was included in this research study, eliminating the other six hospitals' HCAHPS survey respondents in the other districts throughout the healthcare system. HCAHPS surveys that are not equivalent to progressive care units and intensive care units will be excluded. Further, the HCAHPS survey included 19 core questions across eight core survey domains (communication with nurses, communication with doctors, the responsiveness of staff, communication about medications, hospital environment, discharge information, care transitions, and global domain). All HCAHPS

survey domains and questions were excluded except for the communication with doctor performance domain and the global domain question of overall hospital rating 0-10.

Limitations

The scope of the study was limited in regard to generalizability. Results may not be applicable to other healthcare organizations outside of the healthcare system or outside of the boundaries of the central-eastern districts within the healthcare system. Other organizations may have a different composition of structures in terms of their physician staffing, their patient clientele, and their overall demographical culture. In 2018, Hanson et al. found that nonresponse bias affected the interpretation of HCAHPS ratings. Threats to internal validity may include low response rates, which have the potential to bias the outcome and impact healthcare organizational efforts to improve the patient experience. HCAHPS surveys are done autonomously and likely represent the response bias expected at other institutions and reflect the true responses utilized for hospital comparison and value-based payment.

Significance of the Study

This study was significant in that Hospital administrators have increasingly come to rely on HCAHPS survey findings as a quality indicator since 2008, when the CMS initially authorized the survey for U.S. hospitals. Indeed, they already account for 25% of the overall incentive paid to hospitals under the Hospital VBP program. The HCAHPS ratings provide incentive payments to hospitals and insight into the quality of care delivered and areas that may be improved to increase consumer satisfaction (Brimmer, 2014).

Hospitals and physicians must shift their focus from just improving clinical treatment to improving the hospital's HCAHPS ratings, whole patient experience, and bottom line. The findings of this research have far-reaching implications for the healthcare sector as a whole, as they provide essential insight into the role that doctor communication performance plays in shaping patients' perspectives of their treatment and their level of satisfaction with their experience as a whole. One study found that doctor-patient communication was the single most important factor in determining a hospital's overall quality score (Lang, 2012). Therefore, this study may contribute to positive social change by highlighting doctor communication performance components that improve patient satisfaction and the overall hospital rating.

Summary and Conclusion

A more nuanced evaluation of measures such as doctor communication performance, as pertaining to the HCAHPS survey questions regarding how often doctors treated with courtesy and respected, listened carefully, and explained things in a way that patient could understand, is critical to improving patients' experiences throughout the healthcare spectrum for inpatient care. More study is needed to identify effective and generalizable methods of increasing patient satisfaction.

According to a study by Mehra and Mishra (2021), patient's perceived influence and satisfaction play an essential role in physician communication. The independent variables in this study did not address topics like respect and courteousness to the patient during communication interactions, listening intently to the patient, or explaining in a way that the patient understands, as would be done in my investigation. Inpatients who

communicate with physicians in hospitals have not been adequately researched in terms of overall patient satisfaction measures and the effects of physician communication on patient satisfaction as measured by the HCAHPS survey mandated by the CMS. There have also not been any studies pertaining specifically to ICUs and PCUs, where the most critical patients are admitted, nor have there been any studies within the geographical location of the Southeastern region of the U.S.

Section 2: Research Design and Data Collection

This quantitative study investigated links between doctor communication performance and patient satisfaction in ICUs and PCUs. Despite academic research, essentially no published data existed on associations between doctor communication performance, HCAHPS ratings, and quality of care provided. Furthermore, there is little to no research specifically focused on inpatient areas of PCUs and ICUs, where doctors spend more time with patients due to more critical conditions than patients in general medical-surgical inpatient units.

Payments under the VBP have been determined mainly via patient satisfaction surveys given by the HCAHPS. The reimbursement rate for hospitals is determined by its HCAHPS rating; the higher the rating, the higher the reimbursement rate. If a hospital has low HCAHPS scores, it will experience a decrease in federal funding from Medicare. This lowers the hospital's status in the eyes of patients and reduces their Medicare funding (Detwiler & Vaughn, 2020).

In this section, I discuss the research design and rationale, methodology, and threats to validity.

Research Design and Rationale

This retrospective quasi-experimental quantitative study involved using HCAHPS surveys to address patient satisfaction and examine how communication performance with doctors may affect patient satisfaction. Independent variables were measured using a four-point Likert scale. Likert scales are considered ordinal (Vetter and Schober, 2018). Each survey respondent's overall average score was calculated by adding each response

for each question using the Likert scale, then dividing that calculation by three (total number of doctor communication questions) to obtain an average score for each survey respondent.

The dependent variable was overall patient satisfaction, measured using the HCAHPS hospital rating 0-10 global metric ranging from 0 for the worst hospital rating to 10 for the best hospital rating. The average score for each survey respondent was calculated by dividing answers by 10. Hospital rating 0-10 for patient satisfaction is on an ordinal scale; therefore, an ordinal regression analysis was performed to identify the relationship between doctor communication performance using average scores for each respondent regarding the three doctor communication performance domain questions and hospital rating 0-10 survey question for overall patient satisfaction of hospitals within ICUs and PCUs.

The three pillars of Donabedian's theoretical framework were crucial to this research project, where structural factors (ICUs and PCUs) affect care processes (doctor communication), which affect health status outcomes (patient satisfaction).

Methodology

Population

The target population within my study was all HCAHPS-surveyed inpatient adults discharged from ICUs and PCUs located within the five central and eastern hospitals of a large healthcare system in the Southeastern U.S. The population size was estimated to be approximately 500 survey respondents within the calendar year 2022 across five central-eastern districts.

Sampling and Sampling Procedures

According to HCAHPS quality assurance guidelines, the fundamental sampling technique for the HCAHPS comprises collecting a random sample of all qualifying discharges from a hospital. Sampling was done continually during each month from January 2022 – December 2022. The statistical precision aimed for publicly stated hospital scores is based on a reliability criterion. Increased reliability indicated a higher signal-to-noise ratio in the data. HCAHPS global metrics item, such as hospital rating and the likelihood of recommending the hospital measures, and most composites related to the HCAHPS performance domains, have a reliability objective of 0.8 or higher. Based on this goal, hospitals must complete at least 300 HCAHPS surveys over the 12-month reporting period. This uninterrupted random sampling process was followed when collecting the HCAHPS sample. Hospitals/survey vendors must sample every month for the duration of the reporting period and not discontinue sampling or cut back on ongoing interview efforts once a specified number of completed surveys has been reached. The HCAHPS data warehouse received all completed questionnaires. The CMS cleaned and analyzed data that were provided to the HCAHPS data warehouse before calculating hospitals' HCAHPS scores and publicly reporting them on the Hospital Compare website.

A random sample of adult inpatients who were 18 and older was given the HCAHPS survey within 48 hours and 6 weeks after discharge. The survey is open to all patients admitted to medical, surgical, and maternity care service lines; the HCAHPS is not limited to Medicare patients. All eligible patients must have at least one overnight

inpatient stay, a nonpsychiatric MS-DRG/principal diagnosis at discharge and be alive at

the time of discharge. Pediatric patients (those under the age of 18 at the time of

admission) and psychiatric patients were excluded since the current HCAHPS instrument

is not designed to address the unique needs of pediatric patients and their families or the

behavioral health difficulties that psychiatric patients face.

The HCAHPS can be administered in four ways: mail only, telephone only, mixed

(mail with telephone follow-up), or active interactive voice response (IVR), each of

which necessitates numerous attempts to reach patients. Hospitals must conduct patient

surveys every month of the year. IPPS hospitals must complete at least 300 surveys in

four calendar quarters.

Press Ganey, based in the U.S., is a worldwide leader in healthcare performance

improvement by creating and distributing patient satisfaction surveys. The Press Ganey

survey vendor used by the healthcare system provided the secondary datasets needed for

my research. Press Ganey data is Health Insurance Portability and Accountability Act

(HIPAA) compliant, HITRUST Certified, and HITECH compliant. However, to access

data needed for this research, which is not within the scope of my job position within the

healthcare system, I worked under a student agreement with the healthcare system for

data release approval, which was observed by the Director of Practice, Quality, and

Research for the healthcare system.

To determine the sample size for this study, I performed a power analysis using

G*Power version 3.1.9.4. I entered a medium effect size of 0.5, an alpha error of

probability of 0.05, a power of 0.90, and a standard deviation of 1.0. Based on the

calculations, the necessary sample size for statistical significance was 172. To increase accuracy, I used the full population of the sample (ICU dataset N=155; PCU dataset N=963).

Instrumentation and Operationalization of Constructs

Study information was gathered using the HCAHPS questionnaire. With the help of the Agency for Healthcare Research and Quality, this survey was developed back in 2002 to create a unified, uniform system for gauging patients' satisfaction throughout the country's many healthcare facilities. The HCAHPS survey is used to evaluate patients' perceptions of their care and is linked to financial incentives for acute care hospitals across the country. The HCAHPS survey took three years to develop, was piloted in three states, refined based on psychometric traits, was developed for public reporting, and received a National Quality Forum endorsement (Tevis et al., 2014). The HCAHPS survey was validated after intensive testing to ensure that responses are trustworthy and consistent from hospital to hospital. Internal consistency reliability ranged from 0.51 to 0.88 (median = 0.72), while hospital-level reliability ranged from 0.66 to 0.89 (median = 0.88). The HCAHPS Survey revealed strong internal consistency reliability and hospital-level reliability after controlling for patient case mix factors. Survey results are released quarterly on the Hospital Compare website after correcting for administration method and patient case mix. HCAHPS allows for valid hospital comparisons on a local, regional, and national scale. My research relied on data from a single U.S. state, which may not be transferable to other states due to demographic and healthcare system differences.

The nonexperimental methodology of the study limits internal validity. In addition, the purpose of the study was not to draw conclusions about cause and effect but to examine the correlation between doctor communication performance and patient satisfaction. The reliability of HCAHPS survey data in reflecting the quality of care that is actually provided to patients poses a threat to construct validity. According to Warner (2013), it is difficult to objectively determine whether patient perception corresponds with quality outcomes when using the HCAHPS survey to measure the patient perception of care. Threats to internal validity may also include low response rates, which have the potential to bias the outcome and impact healthcare organizational efforts to improve the patient's experience. HCAHPS surveys are done autonomously and likely represent the response bias expected at other institutions and reflect the true responses utilized for hospital comparison and value-based payment.

Press Ganey is a global leader in healthcare performance improvement solutions that offers a comprehensive suite of products that center on the patient and staff experience through the healthcare system. Press Ganey is a CMS-approved vendor that partners with health organizations to administer the HCHAPS survey and provide direct access to patient satisfaction scores to healthcare administrators for their respective entities. Presson et al. (2017) set out to assess the reliability and validity of Press Ganey in order to determine whether or not it is beneficial for gauging the satisfaction of patients. The skewness of individual items, scales, overall scores, and the percentage of floor and ceiling values were examined. As a result, high floor and ceiling rates reduce the capacity to distinguish between patients with low or high satisfaction. Occurrences of

floor and ceiling rates less than 5% and greater than 20% were deemed highly rare and significant, respectively. According to the study's psychometric examination, the reliability and validity of Press Ganey were satisfactory. Consistent with previous studies, all question distributions were negatively skewed, with a maximum rate of 29.3% for the overall Press Ganey survey score. Individual item ceiling rates were from 55.4% to 84.1%, consistent with the H-CAHPS Dutch version's 25.1% to 76% ceiling rates. Given that total scores are translated into percentile rank scores that are used to evaluate institution and provider performance, the high ceiling rate of the Press Ganey instrument is a limitation.

Press Ganey calculates percentile ranks by comparing raw ratings from all participating US hospitals. In most cases, the ceiling rate for patient satisfaction surveys is relatively high, but 29.3% of surveys received the highest possible score in this case. As a result, a half-point decrease from a perfect raw score might change provider percentile rank results by 29.3%. The Press Ganey platform's case-mix adjustment filter option can reduce potential non-response bias and improve score comparability across time and institutions. For the sake of this study, each survey respondent's overall average score was calculated by adding each response for each question, using the 4-point Likert scale (4 = always, 3 = usually, 2 = sometimes, and 1 = never), then dividing that calculation by "3" (the total number of doctor communication performance questions) to obtain an average score for each survey respondent. Calculating the average score for each survey respondent considers how each respondent rated their overall doctor's communication performance abilities across all three HCAHPS survey questions within

the Communicating with Doctors Performance Domain. For example, if a survey respondent's answers to the three doctor communication performance questions are (1) "how often did doctors treat you with courtesy and respect?" score of a "4 = always", "how often did doctors listen carefully to you?" score of a "3 = usually", and "how often did doctors explain things in a way you could understand?" score of a "4 = always", calculating a total score of "11" (4 + 3 + 4 = 11) and then dividing by "3" (the total number of doctor communication performance questions) results in and an average score of 3.6.

The dependent variable within my study was overall patient satisfaction, which was measured by using the Rate the Hospital Global Metric that ranges from "0" for the worst hospital rating to "10" for the best hospital rating. The average score for each survey respondent was calculated by the respondent's answer for the hospital rating 0-10 survey question and then dividing that answer by 10. HCAHPS hospital rating 0-10 for patient satisfaction is on an ordinal scale; therefore, an ordinal regression analysis was performed to identify the relationship between doctor communication performance using the average score for each survey respondent of the three doctor communication performance domain questions and the hospital rating 0-10 survey question for the overall patient satisfaction of hospitals within ICUs (RQ1) and within PCUs (RQ2).

Data Analysis Plan

The statistical tool I used for this study was SPSS) V.28 data analysis software, released in November 2021 and provided by Walden University as the recommended version in March 2023.

Research Questions and Hypotheses. This study was guided by two research questions and their corresponding hypotheses. The independent variables are the average score of the three HCAHPS questions that fall within the communication with doctor's performance domain for each survey respondent. The dependent variable is patient satisfaction, as measured by the HCAHPS rate the hospital 0-10 survey question.

RQ1: Is there a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs?

H_01: There is no statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs.

H_a1: There is a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs.

RQ2: Is there a statistically significant relationship between doctor communication performance overall patient satisfaction rates of PCUs?

H_02: There is no statistically significant relationship between doctor communication performance and overall patient satisfaction rates of PCUs.

H_a2: There is a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of PCUs.

This retrospective quasi-experimental quantitative study examined the relationship of doctor communication performance to patient satisfaction. The independent variables within my study were the three HCAHPS questions listed within the Communication with Doctor's Performance Domain, which are "how often did doctors treat you with courtesy and respect?", "how often did doctors listen carefully to

you?", and "how often did doctors explain things in a way you could understand?" Each survey respondent's overall average score was calculated by adding each response for each question, using the 4-point Likert scale (4 = always, 3 = usually, 2 = sometimes, and 1 = never), then dividing that calculation by "3" (the total number of doctor communication performance questions) to obtain an average score for each survey respondent. Calculating the average score for each survey respondent considers how each respondent rated their overall doctor's communication performance abilities across all three HCAHPS survey questions within the Communicating with Doctors Performance Domain.

The dependent variable within my study was overall patient satisfaction, which was measured by using the Rate the Hospital Global Metric that ranges from "0" for the worst hospital rating to "10" for the best hospital rating. The average score for each survey respondent was calculated by the respondent's answer for the rate the hospital survey question ranging from 0-10 and then dividing that answer by 10. Hospital rating 0-10 for patient satisfaction is on an ordinal scale; therefore, an ordinal regression analysis was performed to identify the relationship between doctor communication performance using the average score for each survey respondent of the three doctor communication performance domain questions and the rate the hospital 0-10 survey question for the overall patient satisfaction of hospitals within ICUs (RQ1) and within PCUs (RQ2).

Threats to Validity

According to Rudestam and Newton (2015), external and internal validity must be considered when undertaking data analysis. The capacity of the results to be generalized to a larger population is referred to as external validity. The data collected in my study came from one state in the United States and may not be generalizable to other states due to differing demographics and variations in health care throughout the country. Internal validity refers to the ability to draw causal conclusions about the relationship between variables. Internal validity is limited due to the study's nonexperimental methodology. Hanson et al. (2018) found that nonresponse bias affected the interpretation of HCAHPS ratings. Low response rates pose a risk to validity and could skew the results, undermining healthcare organizations' attempts to enhance patients' overall experiences. HCAHPS surveys are conducted autonomously and likely reflect the response bias expected at other institutions and the true responses used for hospital comparison and value-based payment. Validity can be threatened if survey responses are not answered correctly due to fear of retribution from their providers.

A possible danger to construct validity is the precision of HCAHPS survey data representing the true and factual patients' perspectives of care that allow objective and meaningful comparisons of hospitals. Validity can be constructed if patient survey scores were entered incorrectly into the database. As the HCAHPS survey is a technique for measuring patient perception of care, it is challenging to objectively determine whether patient perception actually corresponds with quality outcomes (Warner, 2013).

Ethical Procedures

I used secondary data to investigate the correlation between doctor communication performance and patient satisfaction in ICUs and PCUs. The data set was a secondary data set collected from a large healthcare system in the Southeast region of the United States for the calendar year 2022. Human subjects were not utilized to obtain data for this project. It was unnecessary to seek permission or consent documents to conduct this study ethically. To maintain the validity of the statistics, I only ever utilize the data that the research healthcare system has officially released through the Press Ganey data collection tool.

Before the study began, I contacted Walden University's Institutional Review Board to acquire IRB permission to confirm that its methodology is in accordance with Walden University's ethical standards. The IRB approval number for this study is 03-02-23-1076985. Because my data was unavailable to the public, I shall keep it for seven years to ensure its validity can still be demonstrated. The data will be stored on a flash drive and sealed away for seven years. After the allotted time has passed, the flash drive will be destroyed and discarded.

Summary

I used a retrospective quasi-experimental quantitative design. I explored the current level of patient satisfaction and how inpatient patients' communication with their doctors affects their overall ratings of the hospital. The HCAHPS Rate the Hospital 0-10 global metric was used in this study to define patient satisfaction, with 0 being the lowest score and 10 being the highest. Regression can be used to investigate the link between

one independent variable and one or more dependent variables while adjusting for the influence of one or more independent variables (Ali & Younas, 2021). Ordinal regression analysis was used in this study to discover the influence doctor communication performance has on hospital ratings for overall patient satisfaction within ICUs and PCUs located within the five central and eastern hospitals of a large healthcare system located in the Southeastern U.S.

Section 3 includes a discussion of the secondary data set, data collection, results, and study findings.

Section 3: Presentation of the Results and Findings

This study aimed to analyze the extent to which there is a statistically significant relationship between doctor communication performance and the dependent variable of overall patient satisfaction rates in ICUs and PCUs. I conducted this study to determine whether doctor communication performance, particularly in terms of how often doctors use courtesy and respect, listen carefully, and explain in ways patients understand, impacted patient satisfaction as determined by HCAHPS overall hospital rating. Despite the fact that academics have investigated HCAHPS data, little to no research linking doctor communication performance and patient satisfaction has been published. Additionally, there is an absence of research focusing on PCUs and ICUs, where doctors spend more time with patients due to the severity of their conditions. Further, HVBP payments have been based mostly on patient satisfaction surveys administered through the HCAHPS. Reimbursement rates are based on the HCAHPS rating; the better the rating, the greater the reimbursement rate. If a hospital receives poor marks on the HCAHPS, it will see a drop in federal money from Medicare. First, they damage the hospital's standing with patients, and second, they cut into the hospital's share of Medicare funding (Detwiler & Vaughn, 2020).

This study was guided by two research questions and corresponding hypotheses:

RQ1: Is there a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs?

$H_0 1$: There is no statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs.

H_a1: There is a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs.

RQ2: Is there a statistically significant relationship between doctor communication performance overall patient satisfaction rates of PCUs?

H_02: There is no statistically significant relationship between doctor communication performance and overall patient satisfaction rates of PCUs.

H_a2: There is a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of PCUs.

In this section, I describe in greater depth the secondary dataset that was used as well as statistical analyses that were carried out in order to answer the two research questions. Sources of the secondary dataset, how data in the dataset were collected, and how the secondary dataset was compiled are discussed. SPSS figures and tables are used to illustrate and explain data analyses.

Data Collection of Secondary Data Set

I retrieved secondary data and analyzed data after obtaining permission to conduct the study from Walden University's IRB. I collected secondary data from the Press Ganey survey vendor used by the healthcare system. Press Ganey data is HIPAA compliant, HITRUST certified, and HITECH compliant. To access data needed for this research, I worked under a student agreement with the healthcare system for data release approval, supervised by the Director of Practice, Quality, and Research for the healthcare system. The dataset includes deidentified patient satisfaction data for 2022 (custom service date by discharge: 01/01-12/31/2022) specifically for the HCAHPS

communication with doctors' performance domain and HCAHPS global metric for rate the hospital 0-10. Data were filtered only to include ICUs and PCUs and isolated hospitalists and intensivists.

A *t*-test was initially considered the appropriate statistical method to compare mean/average doctor communication performance scores to patient satisfaction. Upon further examination of the data, each participant did not have a mean/average score for doctor communication performance. Each survey respondent's overall average score was calculated by adding each response for each question using the four-point Likert scale, then dividing that calculation by three (the total number of doctor communication performance questions) to obtain an average score for each survey respondent. The three HCAHPS questions listed within the Communication with Doctor's Performance Domain are "how often did doctors treat you with courtesy and respect?", "how often did doctors listen carefully to you?", and "how often did doctors explain things in a way you could understand?" Calculating the average score for each survey respondent considered how each respondent rated their overall doctor's communication performance abilities across all three HCAHPS survey questions within the communicating with doctors' performance domain; therefore, ordinal regression was the appropriate analysis.

Baseline Demographic Characteristics of the Sample Population

All participants were years and older, were classified with an admit hospital status, had at least one overnight hospital stay, and were discharged from ICU or PCU level units.

Table 1 includes the demographics of the returned survey population of ICU patients with regard to patient gender, age group, and race.

Table 1

Descriptive Demographics of the Survey Population of ICU Patients

Patient Gender: ICU		N	Percent
Valid	Female	83	51.6
	Male	75	46.6
	N/A	3	1.9
	Total	161	100.0
Patient Age Group: ICU		N	Percent
Valid	18-25	2	1.2
	26-35	5	3.1
	36-45	2	1.2
	46-55	11	6.8
	56-65	41	25.5
	66-75	49	30.4
	76-85	32	19.9
	86+	16	9.9
	N/A	3	1.9
	Total	161	100.0
Patient Race: ICU		N	Percent
Valid	Race-American Indian/Alaska Native	4	2.5
	Race-Asian	1	.6
	Race-Black/African American	23	14.3
	Race-UNK	8	5.0
	Race-White/Caucasian	125	77.6
	Total	161	100.0

I identified a total of 161 ICU patients who returned their HCAHPS survey to Press Ganey for survey upload into the Press Ganey database for calendar year 2022. There were 83 (51.6%) female survey respondents, 75 (46.6%) male survey respondents,

and three (1.9%) survey respondents who did not identify their gender. Patient survey

respondents were divided into nine age groups, ranging from age 18 to 86+, where "N/A"

represents how many survey respondents did not identify their age (N=3). The largest age

group of survey respondents are ages 66-75, totaling 49 (30.4%) survey respondents. The

smallest age group of survey respondents are ages 18-25 and 36-45, both groups totaling

two (1.2%) survey respondents each. The largest race group was identified as

White/Caucasian, with a total of 125 (77.6%) survey respondents. Following the largest

race group was Black/African American with a total of 23 (14.3%), American

Indian/Alaska Native totaled four (2.5%), Asian totaled one (0.6%), and Race-Unknown

totaled eight (5%) survey respondents (see Table 2).

Table 2

Descriptive Demographics of Survey Population of PCU Patients

Patient Gender: PCU		N	Percent
Valid	Female	480	47.1
	Male	529	51.9
	N/A	10	1.0
	Total	1019	100.0
Patient Age Group: PCU		N	Percent
Valid	18-25	7	.7
	26-35	14	1.4
	36-45	18	1.8
	46-55	60	5.9
	56-65	181	17.8
	66-75	334	32.8
	76-85	294	28.9
	86+	101	9.9
	N/A	10	1.0
	Total	1019	100.0
Patient Race: PCU		N	Percent
Valid	Race-American Indian/Alaska Native	14	1.4
	Race-Asian	10	1.0
	Race-Black/African American	143	14.0
	Race-Hawaiian/Pacific Islander	2	.2
	Race-UNK	43	4.2
	Race- White/Caucasian	807	79.2
	Total	1019	100.0

I identified a total of 1,019 PCU patients who returned their HCAHPS survey to Press Ganey for survey upload into the Press Ganey database for calendar year 2022. There were 480 (47.1%) female survey respondents, 529 (51.9%) male survey respondents, and 10 (1.0%) survey respondents who did not identify their gender. Patient survey respondents were divided into nine age groups, ranging from age 18 to 86+, where

"N/A" represents how many survey respondents did not identify their age (N=10). The largest age group of survey respondents is ages 66-75, totaling 334 (32.8%) survey respondents. The smallest age group of survey respondents is ages 18-25, totaling seven (0.7%) survey respondents. The largest race group was identified as White/Caucasian, with a total of 807 (79.2%) survey respondents. Following the largest race group was Black/African American with a total of 143 (14%), American Indian/Alaska Native totaled 14 (1.4%), Asian totaled 10 (1%), and Race-Unknown totaled 43 (4.2%) survey respondents.

External Validity

My research relied on data from a single U.S. state, which may not be transferable to other states due to demographic and healthcare system differences. The data collected for this study was extracted from a single healthcare system located in the Southeastern United States. According to the census.gov website, the latest population estimate on July 1, 2022, of the cities included in this study is 613,474.

Results

This study was guided by two research questions and their corresponding hypotheses, where the independent variables are the average score of the three HCAHPS questions that fall within the communication with doctor's performance domain, and the dependent variable is patient satisfaction, as measured by the HCAHPS Rate the Hospital 0-10 survey question.

RQ1

An ordinal logistic regression analysis to investigate the relationship between doctor communication performance and rate the hospital for the overall patient satisfaction of hospitals within ICU was conducted (See Tables 15-18). The independent variables for RQ1 are the average score of each participant's responses to the three HCAHPS questions listed within the Communication with Doctor's Performance Domain, which are "how often did doctors treat you with courtesy and respect?", "how often did doctors listen carefully to you?", and "how often did doctors explain things in a way you could understand?" Each of the three independent variables are measured using a 4-point Likert scale with 4 = always, 3 = usually, 2 = sometimes, and 1 = never. The dependent variable for RQ1 is overall patient satisfaction, which was measured by using the Rate the Hospital Global Metric that ranges from "0" for the worst hospital rating to "10" for the best hospital rating. Rate the hospital 0-10 for patient satisfaction is on an ordinal scale.

RQ1 Statistical Assumptions

Researchers attempt to meet a number of assumptions in order to validate the results of an ordinal regression analysis. These assumptions are as follows:

The dependent variable is ordinal. This assumption was met because the dependent variable in both regression analyses was patient satisfaction, as measured by the HCAHPS rate the hospital that ranges from "0" for the worst hospital rating to "10" for the best hospital rating, making it ordinal.

The variables that serve as predictors can be nominal, ordinal, or continuous, but they must be independent. This assumption was met because the independent variables within my study were the three HCAHPS questions listed within the Doctor Communication Performance Domain. Each of the three independent variables is measured using a 4-point Likert scale with 4 = always, 3 = usually, 2 = sometimes, and 1 = never. The 4-point Likert scale is both categorical (named/nominal) and continuous (because it has categories with defined values), making it ordinal.

The independent variables are not multicollinear. Depicted in Table 3, this assumption was met because the VIF score was < 3, making each variable independent from the others. (see Table 3). VIF of < 5 indicates an absence of multicollinearity in which the coefficients are poorly calculated, and the p-values are problematic when identifying statistically significant independent variables (Kim, 2019).

Table 3:

ICU Assessment of Multicollinearity Assumption Coefficients

Model		95.0% Confidence Interval for B		Collinearity Statistics	
		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-3.343	1.576		
	Doctor Courtesy & Respect	.232	1.926	.422	2.372
	Doctor Listening Carefully	.590	1.846	.362	2.760
	Doctor Explaining	-.095	.717	.795	1.258

The proportional odds assumption (also known as the parallel lines assumption) is met (Chen, 2018). If the null hypothesis is rejected, it can be concluded that the assumption has held. For this research question, the proportional odds assumption has held because the significance of the chi-square is .123, $P > .05$. Thus making the effects of all the predictor variables (doctor communication performance) consistent or proportional across the different categories of patient satisfaction (see Table 4).

Table 4

Test of Parallel Lines: ICUs

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	81.153			
General	71.109[b]	10.043[c]	6	.123

RQ1 Descriptive Statistics of Sample

Each study variable was separated to show the response rates of each question within the HCAHPS survey. Tables 5 and 6 present the variable summary for the Doctor Communication Performance average score and Rate Hospital/Patient Satisfaction, respectively, for the patients discharged from an ICU area of a healthcare system located in the Southeastern United States. The total number of cases for the rate the hospital/patient satisfaction and doctor communication performance average score of ICU patients was 161. There were six missing cases where patients did not answer this survey question, leaving the number of valid cases at 155.

Table 5

Variable Summary of Doctor Communication Performance of ICU Patients

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Doctor Communication Performance	155	96.3%	6	3.7%	161	100.0%

Table 6

Variable Summary of Overall Patient Satisfaction of ICU Patients

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Rate Hospital/Overall Patient Satisfaction	155	96.3%	6	3.7%	161	100.0%

Table 7 presents the frequency of responses of ICU discharged patients for the HCHAPS survey questions analyzed in this study.

Table 7

Frequency of Responses of ICU Patients

Rate Hospital/Overall Patient Satisfaction		Frequency	Percent
Valid	0 – Worst Hospital Possible	0	0.0
	1	2	1.2
	2	0	0.0
	3	2	1.2
	4	0	0.0
	5	2	1.2
	6	4	2.5
	7	7	4.3
	8	17	10.6
	9	36	22.4
	10 – Best Hospital Possible	85	52.8
	Total	155	96.3
Missing	System	6	3.7
Total		161	100.0

Doctor Courtesy & Respect		Frequency	Percent
Valid	Never	0	0.0
	Sometimes	2	1.2
	Usually	14	8.7
	Always	140	87.0
	Total	156	96.9
Missing	System	5	3.1
Total		161	100.0

Doctor Listening Carefully		Frequency	Percent
Valid	Never	0	0.0
	Sometimes	7	4.3
	Usually	23	14.3
	Always	126	78.3
	Total	156	96.9
Missing	System	5	3.1
Total		161	100.0

Doctor Explaining		Frequency	Percent
Valid	Never	0	0.0
	Sometimes	7	4.3
	Usually	31	19.3
	Always	117	72.7
	Total	155	96.3
Missing	System	6	3.7
Total		161	100.0

Table 8 specifies the descriptive statistics case processing summary for the patient

response link between ICU patient responses to rate hospital 0-10 and the three doctor

communication performance questions. There were 155 valid cases of patient responses

to rate the hospital 0-10 and the doctor communication performance HCAHPS survey

questions, where the patients answered every HCAHPS survey question included in this

study. In six cases, patients did not respond to all of the survey questions that fall within

the domain of doctor communication performance and/or the rate hospital 0-10 question.

Table 8

ICUs Descriptive Statistics: Case Processing Summary

		N	Marginal Percentage
Rate Hospital 0-10 linked to patient responses of the Doctor Communication Performance questions	0	0	0.0%
	1	2	1.3%
	2	0	0.0%
	3	2	1.3%
	4	0	0.0%
	5	2	1.3%
	6	4	2.6%
	7	7	4.5%
	8	17	11.0%
	9	36	23.2%
	10	85	54.8%
Valid Total		155	100.0%
Missing		6	
Total		161	

RQ1 Statistical Analysis Findings

Table 9 presents the ordinal regression model fit results between the null model

that there is not a statistically significant relationship between doctor communication

performance and Rate Hospital for the overall patient satisfaction of hospitals within

ICUs with only an intercept, and the final model that a statistically significant

relationship does exists between doctor communication performance and Rate Hospital

for the overall patient satisfaction of hospitals within ICUs. The statistically significant

chi-square statistic [$\chi^2(1) = 54.321$, p < .001] suggested that the final model provides a

considerable likelihood that the regression model's log-likelihood value is adequate. The

likelihood value [81.153, p < .001], indicates the model is statistically significant,

suggesting patient satisfaction for rate hospital is affected by doctors' communication

performance in the population sample of ICU patients, and thus outperforming the null

hypothesis.

Table 9

Model Fitting Information: ICUs

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	135.474			
Final	81.153	54.321	1	.000

Link function: Logit.

Table 10 depicts the ordinal logistic regression Chi-square goodness-of-fit test,

which measures how well the observed data corresponds to the fitted model. Goodness-

of-fit tests can help determine if the survey sample follows a normal distribution and

aligns with the expected outcome; a relationship exists between doctor communication

performance and rate the hospital for overall patient satisfaction within ICUs. The

assumption holds true to fail to reject the null hypothesis that there was not a statistically

significant relationship between doctor communication performance and rate the hospital

for the overall patient satisfaction within ICU if p > .05. The Pearson and Deviance Chi-square indicates [χ^2 (34), p > .05]; therefore the data in the models are similar, and the fit is good indicating the proportion of patient responses to each of the HCAHPS survey questions included in this study are the same.

Table 10

Goodness-of-Fit: ICUs

	Chi-Square	df	Sig.
Pearson	45.521	34	.090
Deviance	40.483	34	.206

Link function: Logit.

Table 11 projects the output for the Pseudo R-squared. The Nagelkerke indicates that 31.9% of the variance between doctor communication performance average scores and rate the hospital for the overall patient satisfaction of hospitals within ICUs can be explained.

Table 11

Pseudo R-Square: ICUs

Cox and Snell	.296
Nagelkerke	.319
McFadden	.133

Link function: Logit.

Predictor variables were tested a priori to verify there was no violation of the assumption of no multicollinearity. The predictor variable, doctor communication performance, in the ordinal logistic regression analysis was found to contribute to the model. The Wald Chi-Square tests the null hypothesis that the estimate equals zero. In

this study, the null hypothesis was rejected for each analysis of rate hospital for patient

satisfaction from 0-10 with P < .001 throughout. The ordered log-odds [(Estimate) =

1.096, SE = .157, Wald = 48.779, p < .001]. The estimated odds ratio favored a positive

relationship of nearly three-fold [Exp (B) = 2.993, 95% CI (.789, 1.404)] for rate the

hospital 0-10 for patient satisfaction with every one unit increase of doctor

communication performance.

Table 12

Parameter Estimates: ICUs

| | | | Std. | | | | | 95% Confidence Interval | |
		Estimate	Error	Wald	df	Sig.	Exp(B)	Lower Bound	Upper Bound
Threshold	RateHospital.PtSat.(1)	6.693	1.661	16.234	1	.000	806.474	3.437	9.948
	RateHospital.PtSat.(3)	7.483	1.604	21.772	1	.000	1777.142	4.340	10.626
	RateHospital.PtSat (5)	8.103	1.600	25.664	1	.000	3305.857	4.968	11.239
	RateHospital.PtSat (6)	8.975	1.628	30.376	1	.000	7903.981	5.783	12.167
	RateHospital.PtSat.(7)	9.802	1.673	34.319	1	.000	18064.869	6.522	13.081
	RateHospital.PtSat.(8)	10.947	1.742	39.484	1	.000	56805.280	7.533	14.362
	RateHospital.PtSat.(9)	12.360	1.809	46.708	1	.000	233283.561	8.815	15.905
Location	Doc.Comm.Performance: ICU	1.096	.157	48.779	1	.000	2.993	.789	1.404

Link function: Logit.

For RQ1, a total population of 161 ICU discharged patients were analyzed for the

HCAHPS survey, of which six were determined to be ineligible because they did not

answer all of the HCAHPS questions for rate the hospital 0-10 and doctor communication

performance. The response rate was 96.3%. An ordinal logistic regression analysis was

conducted to model the relationship between doctor communication performance and rate

the hospital for the overall patient satisfaction of hospitals within ICUs. The predictor

variable, doctor communication performance, was discovered to contribute to the model. The average score of the three HCAHPS questions that fall within the communication with doctor's performance domain was found to be related to patient satisfaction as measured by the HCAHPS Rate the Hospital 0-10 survey question for each hospital rating level score category. [(Estimate) = 1.096, SE =.157, Wald = 48.779, p.001] are the ordered log-odds. The estimated odds ratio suggested an almost three-fold positive relationship [Exp (B) = 2.993, 95% CI (.789, 1.404)] for every one-unit increase in doctor communication performance. The results revealed a statistically significant relationship existed between doctor communication performance and rate the hospital for the overall patient satisfaction of hospitals within ICUs, thus rejecting the null hypothesis.

RQ2

RQ2 asked whether there was a statistically significant relationship between doctor communication performance and patient satisfaction in hospitals with patients discharged from a PCU-level hospital inpatient units. An ordinal logistic regression analysis to investigate the relationship between doctor communication performance and rate the hospital 0-10 for the overall patient satisfaction of hospitals within PCUs was conducted (See Tables 19-22). The independent variables for RQ2 are the average score of each participants responses to the three HCAHPS questions listed within the Communication with Doctor's Performance Domain, which are "how often did doctors treat you with courtesy and respect?", "how often did doctors listen carefully to you?", and "how often did doctors explain things in a way you could understand?" The three independent variables are measured using a 4-point Likert scale with 4 = always, 3 =

usually, 2 = sometimes, and 1 = never. The dependent variable for RQ2 is overall patient satisfaction, which was measured by using the Rate the Hospital Global Metric that ranges from "0" for the worst hospital rating to "10" for the best hospital rating. Rate the hospital for patient satisfaction is on an ordinal scale.

RQ2 Statistical Assumptions

Researchers attempt to meet a number of assumptions in order to validate the results of an ordinal regression analysis. These assumptions are as follows:

The dependent variable is ordinal. This assumption was met because the dependent variable in both regression analyses was patient satisfaction, as measured by the HCAHPS rate the hospital that ranges from "0" for the worst hospital rating to "10" for the best hospital rating, making it ordinal.

The variables that serve as predictors can be nominal, ordinal, or continuous, but they must be independent. This assumption was met because the independent variables within my study were the three HCAHPS questions listed within the Doctor Communication Performance Domain. Each of the three independent variables are measured using a 4-point Likert scale with 4 = always, 3 = usually, 2 = sometimes, and 1 = never. The 4-point Likert scale is both categorical (named/nominal) and continuous (because it has categories with defined values), making it ordinal.

The independent variables are not multicollinear. This assumption was met because the VIF score was < 3, making each variable independent from the others. (see Table 13). VIF of < 5 indicates an absence of multicollinearity in which the coefficients

are poorly calculated, and the p-values are problematic when identifying statistically

significant independent variables (Kim, 2019).

Table 13

PCU Assessment of Multicollinearity Assumption Coefficients

Model		95.0% Confidence Interval for B		Collinearity Statistics	
		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.566	2.037		
	Doctor Courtesy & Respect	.565	1.125	.461	2.169
	Doctor Listening Carefully	.508	1.022	.335	2.985
	Doctor Explaining	.207	.634	.398	2.509

The proportional odds assumption (also known as the parallel lines assumption) is

met (Chen, 2018). We can conclude that the assumption has held if we fail to reject the

null. For this research question, the proportional odds assumption has held because the

significance of the chi-square is .595, P >.05. Thus, making the effects of all the predictor

variables (doctor communication performance) consistent or proportional across the

different categories of patient satisfaction. (see Table 14).

Table 14

Test of Parallel Lines: PCUs

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	247.409			
General	240.006	7.403	9	.595

RQ2 Descriptive Statistics of Sample

Tables 15 and 16 presents a summary of the variables for RQ2for rate the

hospital/patient satisfaction and the doctor communication performance average score,

respectively, for the patients discharged from a PCU area of a healthcare system located

in Southeastern United States. In the Table 15, the number of valid cases for the

dependent variable of rate the hospital/patient satisfaction of PCU patients was 1019.

There were 26 missing cases where patients did not answer this survey question. In Table

16, the number of valid cases for the IV of doctor communication performance was 1019.

There were 17 total cases where the patient did not answer any of the three questions.

Table 15

Variable Summary of Doctor Communication Performance of PCU Patients

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Doctor Communication Performance	1002	98.3%	17	1.7%	1019	100.0%

Table 16

Variable Summary of Overall Patient Satisfaction of PCU Patients

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Rate Hospital/Overall Patient Satisfaction	993	97.4%	26	2.6%	1019	100.0%

Table 17 presents the frequency of responses of PCU discharged patients for the

HCHAPS survey questions analyzed in this study.

Table 17

Frequency of Responses of PCU Patients

Rate Hospital/Overall Patient Satisfaction		Frequency	Percent
Valid	0 – Worst Hospital Possible	4	.4
	1	4	.4
	2	8	.8
	3	10	1.0
	4	8	.8
	5	27	2.6
	6	15	1.5
	7	50	4.9
	8	125	12.3
	9	230	22.6
	10 – Best Hospital Possible	512	50.2
	Total	993	97.4
Missing	System	26	2.6
Total		1019	100.0

Doctor Courtesy & Respect		Frequency	Percent
Valid	Never	4	.4
	Sometimes	24	2.4
	Usually	107	10.5
	Always	865	84.9
	Total	1000	98.1
Missing	System	19	1.9
Total		1019	100.0

Doctor Listening Carefully		Frequency	Percent
Valid	Never	8	.8
	Sometimes	47	4.6
	Usually	163	16.0
	Always	777	76.3
	Total	995	97.6
Missing	System	24	2.4
Total		1019	100.0

Doctor Explaining		Frequency	Percent
Valid	Never	13	1.3
	Sometimes	57	5.6
	Usually	185	18.2
	Always	725	71.1
	Total	980	96.2
Missing	System	39	3.8
Total		1019	100.0

Table 18 provides the descriptive statistics case processing summary for the patient response link between PCU patient responses to rate hospital 0-10 and the three doctor communication performance questions. There were 963 valid cases of patient responses to rate the hospital 0-10 and the doctor communication performance HCAHPS survey questions, where the patients answered every HCAHPS survey question included in this study. There were 56 cases where patients did not respond to all of the survey questions that fall within the domain of doctor communication performance and/or the rate hospital 0-10 question.

Table 18

PCUs Descriptive Statistics: Case Processing Summary

		N	Marginal Percentage
Rate Hospital 0-10 linked to patient responses of the Doctor Communication Performance questions	0	4	0.4%
	1	4	0.4%
	2	7	0.7%
	3	9	0.9%
	4	8	0.8%
	5	25	2.6%
	6	15	1.6%
	7	47	4.9%
	8	120	12.5%
	9	224	23.3%
	10	500	51.9%
Valid Total		963	100.0%
Missing		56	
Total		1019	

RQ2 Statistical Analysis Findings

Table 19 shows the ordinal regression model fit results between the null model,

that there is not a statistically significant relationship between doctor communication

performance and Rate Hospital for the overall patient satisfaction of hospitals within

PCU with only an intercept, and the final model that a statistically significant relationship

does exist between doctor communication performance and Rate Hospital for the overall

patient satisfaction of hospitals within PCUs. The statistically significant chi-square

statistic $[\chi^2(1) = 301.348, p < .001]$ indicated the final model gives a significant

likelihood the log-likelihood value of the regression model is good enough. The

likelihood value $[247.409, p < .001]$, indicates the model is statistically significant,

suggesting patient satisfaction for rate hospital is affected by doctors' communication

performance in the population sample of PCU patients, and thus outperforming the null

hypothesis.

Table 19

Model Fitting Information: PCUs

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	548.757			
Final	247.409	301.348	1	.000

Link function: Logit.

Table 20 depicts the ordinal logistic regression Chi-square goodness-of-fit test,

which measures how well the observed data corresponds to the fitted model. Goodness-

of-Fit tests can help determine if the survey sample follows a normal distribution and aligns with the expected outcome; a relationship exists between doctor communication performance and rate the hospital for overall patient satisfaction within PCUs. The assumption holds true to fail to reject the null hypothesis that there is not a statistically significant relationship between doctor communication performance and rate the hospital for the overall patient satisfaction within PCUs if $p > .05$. The Pearson Chi-square [χ^2 (79), $p < .05$], indicates there is sufficient evidence to conclude that the observed distribution is not the same as the expected distribution, resulting that a relationship does exist between the variables. However, the Deviance Chi-square indicates [χ^2 (79), $p > .05$]; therefore, the data in the models are similar, and the fit is good indicating the proportion of patient responses to each of the HCAHPS survey questions included in this study are the same.

Table 20

Goodness-of-Fit: PCUs

	Chi-Square	df	Sig.
Pearson	366.752	79	.000
Deviance	95.703	79	.097

Link function: Logit.

Table 21 projects the output for the Pseudo R-squared. The Nagelkerke indicates that 28.6% of the variance between doctor communication performance average scores and rate the hospital for the overall patient satisfaction of hospitals within PCU can be explained.

Table 21

Pseudo R-Square: PCUs

Cox and Snell	.269
Nagelkerke	.286
McFadden	.111

Link function: Logit.

Depicted in Table 22, the predictor variable was tested a priori to verify there was no violation of the assumption of no multicollinearity. The predictor variable, doctor communication performance, in the ordinal logistic regression analysis was found to contribute to the model. The Wald Chi-Square tests the null hypothesis that the estimate equals zero. In this study, the null hypothesis was rejected for each analysis of rate hospital for patient satisfaction from 0-10 with P < .01 throughout. The ordered log-odds [(Estimate) = .800, SE = .047, Wald = 280.185, p < .001]. The estimated odds ratio favored a positive relationship of nearly 2-fold [Exp (B) = 2.225, 95% CI (.708, 0892)] for rate hospital for patient satisfaction with every one unit increase of doctor communication performance.

Table 22

Parameter Estimates: PCUs

		Estimate	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Threshold	RateHospital.PtSat.(0)	1.866	.604	9.537	1	.002	6.459	.682	3.050
	RateHospital.PtSat.(1)	2.790	.511	29.847	1	.000	16.281	1.789	3.791
	RateHospital.PtSat.(2)	3.660	.474	59.545	1	.000	38.869	2.731	4.590
	RateHospital.PtSat.(3)	4.315	.466	85.805	1	.000	74.832	3.402	5.228
	RateHospital.PtSat.(4)	4.710	.466	102.106	1	.000	111.009	3.796	5.623
	RateHospital.PtSat.(5)	5.497	.475	133.703	1	.000	243.865	4.565	6.428
	RateHospital.PtSat.(6)	5.831	.481	146.746	1	.000	340.551	4.887	6.774
	RateHospital.PtSat.(7)	6.590	.497	175.522	1	.000	728.138	5.616	7.565
	RateHospital.PtSat.(8)	7.729	.521	219.867	1	.000	2274.116	6.708	8.751
	RateHospital.PtSat.(9)	9.029	.540	279.534	1	.000	8341.790	7.971	10.087
Location	Doc.Comm. Performance: PCU	.800	.047	290.185	1	.000	2.225	.708	.892

Link function: Logit.

For RQ2, a total population of 1,019 PCU discharged patients were analyzed for the HCAHPS survey, of whom 56 were determined to be ineligible because they did not answer all of the HCAHPS questions for rate the hospital 0-10 and doctor communication performance. The response rate was 94.5%. An ordinal logistic regression analysis was conducted to model the relationship between doctor communication performance and rate the hospital 0-10 for the overall patient satisfaction of hospitals within PCUs. The predictor variable, doctor communication performance, in the ordinal logistic regression analysis was found to contribute to the model. The average score of the three HCAHPS questions that fall within the communication with doctor's performance domain was

found to be related to patient satisfaction as measured by the HCAHPS Rate the Hospital

0-10 survey question for each hospital rating level score category. The ordered log-odds

[(Estimate) = .800, SE = .047, Wald = 280.185, p < .001]. The estimated odds ratio

favored a positive relationship of nearly two-fold [Exp (B) = 2.225, 95% CI (.708, 0892)]

for every one unit increase of doctor communication performance. The results revealed a

statistically significant relationship existed between doctor communication performance

and rate the hospital for the overall patient satisfaction of hospitals within PCUs, thus

rejecting the null hypothesis.

Summary

This study examined whether doctor communication performance and patient

satisfaction in ICUs and PCUs located within the five central and eastern hospitals of a

large healthcare system in the Southeastern U.S. are statistically significant. I examined

whether doctor communication performance, particularly how often doctors treat patients

with respect, listen carefully, and explain in a way patients can understand, affected

patient satisfaction as measured using HCAHPS overall hospital ratings. No scholarly

research has linked doctor communication to HCAHPS patient satisfaction scores,

particularly for PCUs and ICUs, where doctors spend more time with patients due to the

severity of their illnesses.

This study included two research questions. An ordinal logistic regression

analysis was conducted to model the relationship between doctor communication

performance and hospital rating 0-10 for overall patient satisfaction of ICUs for RQ1 and

PCUs for RQ2. I concluded there was a positive relationship between patient satisfaction

and doctor communication performance, and there was a statistically significant relationship between doctor communication performance and overall patient satisfaction rates of ICUs and PCUs.

Section 4 includes interpretations of findings, study limitations, recommendations for further research, and implications for professional practice and social change.

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

The purpose of this study was to determine whether or not there is a statistically significant association between doctor communication performance and patient satisfaction in hospital ICU and PCU settings located within the five central and eastern hospitals of a large healthcare system located in the Southeastern U.S. I conducted this study to see if doctor communication performance, specifically how often doctors treat patients with courtesy and respect, listen carefully, and explain in ways that patients understand, affected patient satisfaction as measured by HCAHPS overall hospital rating. Although academics have analyzed HCAHPS data, very little published research has linked doctor communication performance to HCAHPS patient satisfaction ratings. There is also a lack of studies concentrating on inpatient settings such as PCUs and ICUs, where doctors spend more time with patients due to the severity of their conditions.

RQ1 involved examining the relationship between doctor communication performance and overall patient satisfaction rates of ICUs. In contrast, RQ2 involved examining the relationship between doctor communication performance and overall patient satisfaction rates of PCUs. An ordinal logistic regression analysis was conducted. Results revealed a statistically significant relationship existed between doctor communication performance and overall patient satisfaction rates of ICUs and PCUs; for every one-unit increase in doctor communication performance, patient satisfaction hospital ratings increased nearly threefold (by 2.993 points) within ICUs and nearly twofold (by 2.225 points) within PCUs.

Interpretation of the Findings

The HCAHPS survey is a widely disseminated evaluation of hospital patients' perspectives. It is used to measure their perspectives of their hospital stays and is a uniform method for collecting and publicly reporting patient experiences with care. Patient satisfaction is directly affected by physician-patient communication and plays a significant and vital role in terms of care quality, patient medical compliance, and clinical outcomes (Gessesse et al., 2022). Medicare and other insurers in the U.S. use HCAHPS data to compensate hospitals for quality improvement. Findings are published on the Care Compare website to enable patients to pick between facilities. I concluded that overall doctor communication performance, pertaining to courtesy and respect, listening to patients, and understandably explaining to patients, has a statistically significant impact on patient satisfaction ratings in a hospital healthcare system in the southeastern U.S.

Findings in Relation to Peer-Reviews Literature

According to Moslehpour, Shalehah, Rahman, and Lin (2022), physician-patient communication and patient satisfaction have been hot topics in recent years and have been studied from many angles. Unfortunately, the researchers' thorough evaluations that combine recent studies with patient satisfaction surveys that stress doctor-patient communication were found to be rare. The study authors recommend looking at individual doctors, physician groups, and hospital organizational factors to improve communication between physicians and their patients. The doctor-patient connection is becoming more important in terms of shaping health outcomes as healthcare evolves to become more individualized and patient-centered. There are currently minimal studies

regarding doctor communication performance and its effects on overall patient satisfaction. The relationship between doctor communication performance and overall patient satisfaction has not been studied directly within PCUs or ICUs, where the most critical patients are treated, and doctors spend more time compared to other inpatient units. I isolated all hospitalists and intensivists who primarily treated and managed care provided to patients admitted to ICUs and PCUs of a large healthcare system comprising multiple hospital facilities in the Southeastern U.S.

According to Lappe et al. (2020), patients are more satisfied with solo hospitalist doctors, but the HCAHPS physician performance survey showed no effect on the CMS' VBP incentive payments. However, this trial had several limitations, such as its single institution setting and the fact that patients were not randomly assigned to treatment groups (with the majority going to resident teams and the remainder to a hospitalist working alone). Similarly, another study focused on measuring patient-physician communication and patient satisfaction more holistically and integrated with a logical array of relationships (Pelletier, 2019). The study was constrained primarily by methodological difficulties and was also only conducted in one hospital. Belasen et al. (2021) aimed to examine the impact of giving residents tailored instruction and feedback on the overall HCAHPS scores and the physicians' communication scores, which are HCAHPS, of the academic attending. This research was carried out at a single hospital in East Lansing, Michigan, and only included residency program residents, where doctor-patient contact was handled predominantly by interns. The coronavirus outbreak

interrupted the research and did not examine the correlation between physician communication and patient satisfaction.

According to Allenbaugh et al. (2019), University of Pittsburgh Medical Center patients had low patient satisfaction. Poor performance in this area was attributed to limited bedside communication training. Overall, residents and nurses reported considerable clinical communication skill improvements , and HCAHPS communication subscale ratings increased. However, this research strictly focused on communication between nurses and residents and how improving resident-nurse communication also improves communication at the bedside.

Findings in Relation to Theoretical Framework

Donabedian's theoretical framework for examining health services and rating healthcare quality was the theoretical framework for this study. Donabedian's model of healthcare quality assessment is a generally applicable paradigm for measuring care quality. The three pillars of Donabedian's framework were critical to this research.

Limitations of the Study

In terms of generalizability, the study's scope was limited. Findings may not apply to other healthcare organizations outside the healthcare system or its central and eastern districts. Other organizations outside of this study's population may have a distinct organizational composition regarding physician staffing, patient clientele, and overall demographic culture. A low response rate of ICU survey respondents, which has the potential to prejudice outcomes and impair healthcare organizational efforts to improve the patient experience, is one of the threats to internal validity in this study.

According to the power analysis, the sample size required for statistical significance was 172. Using the full ICU sample population, the total number of survey respondents was 155, which was slightly less than the power analysis. As the HCAHPS survey is a technique for measuring patient perceptions of care, it is challenging to objectively determine whether patient perception actually corresponds with quality outcomes (Warner, 2013). Further, HCAHPS surveys are done autonomously and likely reflect response bias as expected at other institutions.

Recommendations for Future Research

Patient satisfaction continues to become increasingly an important and commonly used indicator for measuring the quality of health care. Patient satisfaction surveys centered on dialogue between doctors and patients have also been shown to affect a hospital's financial position. There are currently minimal studies regarding doctor communication performance's effects on overall patient satisfaction and the relations between them. Recommendations for future research include expanding into all areas of inpatient care and including other physician groups that treat patients admitted to an inpatient unit, such as general practitioners, surgeons, cardiologists, oncologists, radiologists, neurologists, etc. Additionally, due to the recent CMS mandate for the Consumer Assessment of Healthcare Providers and Systems Outpatient and Ambulatory Surgery Survey (OAS-CAHPS) to be required and linked to reimbursement in starting January 1, 2024, for hospital-based outpatient departments (HOPDs) and starting January 1, 2025, for ambulatory surgery centers (ASCs) as part of the quality reporting

requirement, it is recommended future patient satisfaction research is expanded into the outpatient and ambulatory surgery units.

Implications for Professional Practice and Social Change

CMS reimbursement rates, clinical outcomes, patient retention, and medical malpractice cases are all influenced by patient satisfaction with the care they receive (Gessesse et al., 2022). Any doctor-patient dialogue should aim to improve the patient's health and medical care. When a doctor and patient are able to communicate effectively, it can help patients feel more in control of their feelings, make it easier for them to understand medical information, and help the doctor better understand the patient's goals for treatment. It affects the ability to offer high-quality medical care quickly and efficiently that is also focused on the needs of the individual patient. Therefore, patient satisfaction scores are a partial but extremely useful indicator of determining how well doctors and hospitals are performing and identifying improvement areas, which leads to implications for professional practice and positive social change in the field of quality healthcare.

Professional Practice

To achieve the best possible outcome and level of patient satisfaction, physicians must have strong communication skills in order to effectively and efficiently gather relevant medical information, facilitate accurate diagnosis, counsel appropriately, provide therapeutic instructions, and establish caring relationships with patients. Communication skills have been seen to deteriorate as medical students move through their medical education, and doctors in training tend to lose focus on holistic patient care with time

(Dewi et al., 2023). Increased emphasis on communication in medical schools and professional workplaces can increase patient satisfaction and improve CMS reimbursement rates. The conclusions of this study should be considered while defining medical training requirements. One way that supervising physicians and medical directors might affect the provision of high-quality services is to evaluate patient satisfaction with doctor performance for purposes connected to developing and enhancing medical care based on patients' expectations. Additionally, in-service training programs should be developed to enhance physicians' knowledge and skills in the areas of communication performance, including courtesy and respect, attentive listening, and the explanation of the medical aspects of a patient's care during conversations with patients.

Positive Social Change

Despite the fact that numerous studies have shown a correlation between patient satisfaction and healthcare quality and between effective communication and improved health outcomes, this is not enough to guarantee that patients and their loved ones will be pleased with the overall care they receive before they leave the hospital. Effective communication, combined with compassionate care, promotes a healthy provider-patient relationship and builds trust, which can lead to better physical and psychological outcomes. This research can affect positive social change by expanding the available knowledge that analyzes doctor communication performance and its relationship with patient satisfaction with the overall hospital rating. This study also has the potential to influence best practices within hospital systems and guide future innovations of doctor communication tools that can guide a culture of successful communication that is

centered around caring, trust and respect while also improving CAHPS results and patient satisfaction.

Conclusion

Disentangling the aspects contributing to patients' overall satisfaction with their care is one of the key problems with the HCAHPS hospital rankings. While research on the topic of nurse-patient communication is vast, the effect of provider-patient communication on patient satisfaction has received less attention. The purpose of this retrospective, quasi-experimental study was to apply Donabedian's theoretical framework to examine the connection between doctor communication (process) and patient satisfaction (outcome) in the ICUs and PCUs (structure), where the sickest patients are treated. Two research questions guided this study. RQ1 analyzed the relationship between doctor communication performance and hospital rating for overall patient satisfaction in ICUs. RQ2 analyzed the relationship between doctor communication performance and hospital rating for overall patient satisfaction in PCUs. RQ1 and RQ2 were subjected to an ordinal logistic regression analysis, which revealed a statistically significant relationship between doctor communication performance and overall patient satisfaction as measured by the HCHAPS hospital rating 0-10 survey question. As this study adds to the existing body of knowledge analyzing doctor communication performance and its relationship with patient satisfaction and the overall hospital rating, it has the potential to effect positive social change by adding to our understanding of how effective doctor-patient communication affects patients' ratings of their hospital experience as a whole. Further, the findings of this research may impact hospital-wide

best practices and guide the development of physician communication tools that enhance

CAHPS scores and patient satisfaction through cultivating an atmosphere characterized

by openness, honesty, and mutual regard.

References

Al-Amin, M., & Makarem, S. C. (2016). The effects of hospital-level factors on patients'

ratings of physician communication. *Journal of Healthcare Management, 61*(1),

28–41.

Ali P. & Younas A. (2021). Understanding and interpreting regression analysis.

Evidence-Based Nursing. 24, 116-118. https://doi.org/10.1136/ebnurs-2021-

103425

Allenbaugh, J., Corbelli, J., Rack, L., Rubio, D., & Spagnoletti, C. (2019). A brief

communication curriculum improves resident and nurse communication skills and

patient satisfaction. *Journal of General Internal Medicine*, *34*(7), 1167–1173.

https://doi.org/10.1007/s11606-019-04951-6

Aoki, T., Yamamoto, Y., & Nakata, T. (2020). Translation, adaptation and validation of

the hospital consumer assessment of Healthcare Providers and Systems

(HCAHPS) for use in Japan: A multicentre cross-sectional study. *BMJ Open,

10*(11). https://doi.org/10.1136/bmjopen-2020-040240

Belasen, A. T., Oppenlander, J., Belasen, A. R., & Hertelendy, A. J. (2021). Provider-

patient communication and hospital ratings: Perceived gaps and forward thinking

about the effects of COVID-19. *International Journal for Quality in Health Care*,

33(1). https://doi.org/10.1093/intqhc/mzaa140

Bombard, Y., Baker, G. R., Orlando, E., Fancott, C., Bhatia, P., Casalino, S., Onate, K.,

Denis, J. L., & Pomey, M. P. (2018). Engaging patients to improve quality of

care: A systematic review. *Implementation Science:, 13*(1), 98.

https://doi.org/10.1186/s13012-018-0784-z

Brimmer, K. (2014, February 28). Communication key to strong HCAHPS. *Healthcare*

Finance News. https://www.healthcarefinancenews.com/news/communication-

key-strong-hcahps

Castellucci, M. (2019). CMS looks to revise HCAHPS survey; Hospitals say it's long

overdue. *Modern Healthcare*, *49*(23), 6.

https://www.modernhealthcare.com/providers/cms-looks-revise-hcahps-survey-

amid-complaints- hospitals

Chen, J. (2018). *Applied categorical and count data analysis*. Chapman and Hall/CRC.

Centers for Medicare and Medicaid Services. (2022). *Improving patient experience*.

https://www.hcahpsonline.org/en/summary-analyses/

Centers for Medicare and Medicaid Services. (2023). Outpatient and ambulatory surgery

CAHPS (OAS CAHPS). https://www.cms.gov/data-research/research/consumer-

assessment-healthcare-providers-systems/outpatient-and-ambulatory-surgery-

cahps

Davidson, K. W., Shaffer, J., Ye, S., Falzon, L., Emeruwa, I. O., Sundquist, K., Inneh, I.

A., Mascitelli, S. L., Manzano, W. M., Vawdrey, D. K., & Ting, H. H. (2017).

Interventions to improve hospital patient satisfaction with healthcare providers

and systems: A systematic review. *BMJ Quality & Safety*, *26*(7), 596–606.

https://doi.org/10.1136/bmjqs-2015-004758

Detwiler, K., & Vaughn, N. (2020). Patient satisfaction & HCAHPS reimbursement. https://www.relias.com/blog/how-do-patient-satisfaction-scores-affect-reimbursement

Dewi, S., Wilson, A., Duvivier, R., Kelly, B., & Gilligan, C. (2023). Perceptions of medical students and their facilitators on clinical communication skills teaching, learning, and assessment. Frontiers in *Public Health, 11:*. https://doi.org/10.3389/fpubh.2023.1168332

Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, *44*(3), 166–206. https://doi.org/10.2307/3348969

Donabedian, A. (1988). The quality of care: How can it be assessed? *Journal of the American Medical Association, 260*(12), 1743–1748. https://doi.org/10.1001/jama.260.12.1743

Eamranond, A., Rodis, J., Richard, K., Safer, A., Kunupakaphun, S., Grey, M., & Eamranond, P. (2022). Decade of patient experience improvement at a tertiary care urban hospital. *Quality Management in Health Care, 31*(2), 53–58. https://doi.org/10.1097/QMH.0000000000000326

Ervin, J., Kahn, J., Cohen, T. & Weingart, L. (2018). Teamwork in the Intensive Care Unit. *American Psychologist, 73*(4), 468–477. https://doi.org/10.1037/amp0000247

Gessesse, A., Mohammed Haile, J., & Woldearegay, A. (2022). The nexus between physician-patient communication and health outcomes: Level of patient communication satisfaction and its impact on adherence in Ethiopian

comprehensive specialized hospitals. *Patient Preference and Adherence, Volume 16,* 2509–2519. https://doi.org/10.2147/ppa.s381937

Hamid, S., Bhat, A., Yatoo, G., & Sajad. (2022). Evaluation of patient satisfaction in inpatient department of a secondary level hospital of South Kashmir. *Journal of Pharmaceutical Negative Results, 13*, 1267–1286. https://doi.org/10.47750/pnr.2022.13.S06.167

Hanson, K., Zalewski, N., Hocker, S., Caselli, R., Habermann, E., & Thiels, C. (2018). At The Intersection of Patient Experience Data, Outcomes Research, and Practice: Analysis of HCAHPS Scores in Neurology Patients. *Mayo Clinic Proceedings: Innovations, Quality & Outcomes, 2*(2), 137-147. https://doi.org/10.1016/j.mayocpiqo.2018.03.007

Hospital Value-Based Purchasing Program. (2022). CMS.gov. https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/hospitalqualityinits/hospital-value-based-purchasing-

Kim, J.H. (2019). Multicollinearity and misleading statistical results. *Korean Journal of Anesthesiology*, 72(6), 558-569. https://doi.org/10.4097/kja.19087

Lang E. V. (2012). A Better Patient Experience Through Better Communication. *Journal of Radiology Nursing*, *31*(4), 114–119. https://doi.org/10.1016/j.jradnu.2012.08.001

Lappé, K., Raaum, S., Ciarkowski, C., Reddy, S., & Johnson, S. (2020). Impact of Hospitalist Team Structure on Patient-Reported Satisfaction with Physician

Performance. JGIM: *Journal of General Internal Medicine, 35*(9), 2668–2674. https://doi.org/10.1007/s11606-020-05775-5

Liang, G. & Wang, K. (2019). Analysis of t-test misuses and SPSS operations in medical research papers. *Burns & Trauma, 7*(1), 31. https://doi.org/10.1186/s41038-019-0170-3

Mehra, P., & Mishra, A. (2021). Role of Communication, Influence, and Satisfaction in Patient Recommendations of a Physician. *Vikalpa, 46*(2), 99–111. https://doi.org/10.1177/02560909211027090

Miller, E. M., & Hill, P. D. (2018). Intuition in Clinical Decision Making: Differences among Practicing Nurses. *Journal of Holistic Nursing: Official Journal of the American Holistic Nurses' Association, 36*(4), 318-329. https://doi.org/10.1177/0898010117725428

Moslehpour, M., Shalehah, A., Rahman, F., & Lin, K. (2022). The Effect of Physician Communication on Inpatient Satisfaction. *Healthcare, 10*(3), 463. https://doi.org/10.3390/healthcare10030463

Palabindala, V., & Abdul Salim, S. (2018). Era of hospitalists. *Journal of community hospital internal medicine perspectives*, 8(1), 16–20. https://doi.org/10.1080/20009666.2017.1415102

Pelletier, D., Green-Demers, I., Collerette, P., & Heberer, M. (2019). Modeling the Communication-Satisfaction Relationship in Hospital Patients. *SAGE Open Medicine, 7*, 2050312119847924. https://doi.org/10.1177/2050312119847924

Petrullo, K.A., Lamar, S., Nwankwo-Otti, O., Alexander-Mills, K., & Viola, D. (2012).

    The Patient Satisfaction Survey: What Does It Mean To Your Bottom Line?

    Journal of Hospital Administration. 2(2) https://doi.org/10.5430/jha.v2n2p1

Pomey, M. P. (2018). Engaging Patients to Improve Quality of Care: A Systematic

    Review. *Implementation Science: IS, 13*(1), 98. https://doi.org/10.1186/s13012-

    018-0784-z

Presson, A. P., Zhang, C., Abtahi, A. M., Kean, J., Hung, M., & Tyser, A. R. (2017).

    Psychometric properties of the Press Ganey (R) Outpatient Medical Practice

    Survey. *Health And Quality Of Life Outcomes*, 15, 32.

    https://doi.org/10.1186/s12955-017-0610-3

Ray, J., & Stargardt, D. (2020). Linking Hospital Consumer Assessment of Healthcare

    Providers and Systems to Swanson Caring Theory: A Diagnostic Model for

    Improvement. *The Journal of Nursing Administration, 50*(4), 216–224.

    https://doi.org/10.1097/NNA.0000000000000871

Rudestam, K., & Newton, R. (2015). *Surviving your dissertation: A comprehensive guide*

    to content and process (4th ed.). Los Angeles, CA: SAGE Publications.

Santhosh, L., & Sewell, J. (2020). Hospitalist and Intensivist Experiences of the "Open"

    Intensive Care Unit Environment: a Qualitative Exploration. *Journal of General*

    Internal Medicine, 35(8), 2338–2346. https://doi.org/10.1007/s11606-020-05835-

    w

Seiler, A., Knee, A., Shaaban, R., Bryson, C., Paadam, J., Harvey, R., Igarashi, S.,

    LaChance, C., Benjamin, E., & Lagu, T. (2017). Physician Communication

Coaching Effects on Patient Experience. *PloS One, 12*(7), e0180294.

https://doi.org/10.1371/journal.pone.0180294

Schneider, A., Hommel, G., & Blettner, M. (2010). Linear Regression Analysis: Part 14

of A Series on Evaluation of Scientific Publications. *Deutsches Arzteblatt*

International, 107(44), 776–782. https://doi.org/10.3238/arztebl.2010.0776

Schnipper, J., Fitall, E., Hall, K., & Gale, B. (2021, March 10). Approach to Improving

Patient Safety: Communication. *Patient Safety Network.*

https://psnet.ahrq.gov/perspective/approach-improving-patient-safety-

communication

Siedlecki, S. (2020). Quasi-Experimental Research Designs. *Clinical Nurse Specialist, 34*

(5), 198-202. https://doi.org/10.1097/NUR.0000000000000540

Sodhi, K., & Chanchalani, G. (2022). Critical Care Medicine - Not Just a Profession, but

a Passion, a Commitment!!. *International journal of applied & basic medical*

research, 12(3), 155–156. https://doi.org/10.4103/ijabmr.ijabmr_319_22

Tevis, S. E., Schmocker, R. K., & Kennedy, G. D. (2014). Can patients reliably identify

safe, high quality care? *Journal of hospital administration*, 3(5), 150–160.

https://doi.org/10.5430/jha.v3n5p150

The Centers for Medicare & Medicaid Services. (2022). https://data.cms.gov/provider-

data/dataset/dgck-syfz.

U.S. Centers for Medicare and Medicaid Services. (2021). *HCAHPS: Patients'*

perspectives of care survey. CMS. https://www.cms.gov/Medicare/Quality-

Initiatives-Patient-Assessment-

Instruments/HospitalQualityInits/HospitalHCAHPS

Vetter, T. & Schober, P. (2018). Regression: The Apple Does Not Fall Far from the Tree. *Anesthesia & Analgesia: 127*(1), 277-283 https://doi.org/10.1213/ANE.0000000000003424

Villalona, S., Boxtha, C., Webb, W. A., Cervantes, C., & Wilson, J. W. (2020). "If at least the patient could not be forgotten about": Communication in the emergency department as a predictor of patient satisfaction. *Journal of Patient Experience, 7*(6), 1015–1021. https://doi.org/10.1177/2374373520957123

Warner, R. (2013). *Applied statistics: From bivariate through multivariate techniques* (2nd ed.). SAGE Publications.