2020

The Hospital Consumer Assessment of Healthcare Providers and Systems and Readmissions

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This is to certify that the doctoral dissertation by

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Walden University
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Abstract

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Sheri Deane Matson

MPA, California State University, Dominguez Hills, 2015

BSN, University of Florida, 2001

Proposal Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy & Administration

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August 2020

Abstract

Patient perception of care has become a main priority in the delivery of high-quality health care. The creation of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey provided a nationally standardized method of evaluating patient perception to be incorporated in the reimbursement process defined by the Centers for Medicare and Medicaid Services (CMS). The purpose of this study was to examine the relationship between HCAHPS scores and readmission rates in 2 states in the South Atlantic region of the United States. Using social construction theory, this quantitative study utilized multiple regression analysis to analyze HCAHPS scores (independent variables [IV]) and readmission rates (dependent variable [DV]) with secondary data from the Hospital Compare website, controlling for external hospital characteristics. The IVs were found to significantly contribute to the variance in readmission scores collectively at 14.2% but were not significant individually. When controlling for covariates, RN communication and care transition accounted for 4.1% and 4.4% of the variance, respectively. RN communication and MD communication accounted for 7.3% and 4.4%, respectively, of the variance when controlling for covariates. RN communication and care transition accounted for 12.2% of the variance in readmission, but only care transition was found to be significant by itself. These findings highlight for administrators the importance of investing resources in provider communication and the discharge transition process to improve patient perception, improve quality care by reducing acute care readmissions, and contribute to the health of patients in acute care hospitals.

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Dedication

To my daughter Hannah—know that each and every one of your dreams is achievable. I hope that given all the times I had to focus on school as you were growing up, you can recognize that not only was I pursuing my dream, but also showing you that anything is possible if you are willing to work for it. You are an amazing kid, and I am beyond blessed to be your mom. I love watching you grow up, and I can't wait to see all you accomplish in life. To my parents—for as long I can remember, you encouraged me to be happy and pursue happiness above all else in life. I can never repay you for the love and support you have shown me. Your advice has become my inner consciousness, and I cherish every word. To Jesus—I tightened up! Your tough love, sarcasm, and endless jokes have gotten me through so much of this journey. Life with you is never boring, and I am incredibly grateful for all you do for me.

Acknowledgments

I would first like to acknowledge my chair, Dr. Melanie Smith. You consistently supported me despite many obstacles during this dissertation. Your words of wisdom changed my approach to life and academia. Thank you for your patience, encouragement, and the occasional snap back to reality when needed. Dr. George Larkin, my committee member, jumped in without hesitation at a critical point in my journey, and I am truly thankful. Finally, Dr. Steven A. Matarelli—your knowledge regarding my methodology was invaluable. Just when I thought I understood APA and SPSS, you showed me even more! Your revisions and comments were always thought-provoking and challenged me to be a better researcher and author.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

The topic of my study was the relationship between the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey and the quality indicator of 30-day all-cause hospital readmissions (ACHR) in two states in the South Atlantic region of the United States. My study contributes to the field by demonstrating the relationship of these variables in regard to the financial management of healthcare organizations. The study may promote positive social change by informing healthcare administrators' efforts to assess the proper distribution of resources to contribute to higher patient satisfaction and improved quality outcomes for patients.

This chapter addresses the study's background, problem statement, purpose, research question and hypothesis, theoretical framework, nature, operational definitions, limitations, delimitations, assumptions, and significance.

Background

With the switch in focus from volume-based purchasing to value-based purchasing, the HCAHPS survey has become an integral component of efforts to evaluate patient perception and quality outcomes. Prior to this switch, healthcare services were predominantly based on fee-for-service structures, encouraging practitioners to focus on quantity rather than quality (Asplin, 2010). In 2013, participating inpatient hospitals experienced a 1% reduction in reimbursement from the diagnosis-related group (DRG) system. These hospitals experienced further reductions in reimbursements in the years that followed, with reimbursements falling 1.25% in 2014, 1.5% in 2015, 1.75% in 2016, and 2% each year following 2016. These reductions in funds would then be used as

incentive payments for hospitals meeting quality and patient experience standards established by the Centers for Medicare and Medicaid Services (CMS). Incentivized payments through the value-based purchasing (VBP) program occur in two domains: clinical process of care and patient experience of care. Clinical processes of care comprise 70% of weighted value, while patient experience comprises 30%. CMS statistically analyzes these two domains and rewards funds based on total scores (CMS, 2018b).

With the creation of the Patient Protection and Affordable Care Act in 2010, emphasis was placed on creating a health care system that reduces waste, increases efficiency, and improves patient outcomes (Rosenbaum, 2011). However, barriers and challenges have been identified in regard to the attached financial incentives of VBP (Christensen, 2014). The creation of the HCAHPS survey involved the use of scientific data to implement a system for accurately determining patient perceptions of care in regard to VBP (Giordano, Elliot, Goldstein, Lehrman, & Spencer, 2010). The purpose of developing the HCAPHS survey was to implement a standardized method of evaluating the patient experience or the patient's perception of care. With information gathered through the HCAPHS, consumers are able to compare hospitals using objective and similar data (CMS, 2018a).

Extensive research has been performed on a variety of HCAHPS survey items and aspects of quality care such as readmission rates. Relationships of the composite items of nurse and physician communication with 30-day readmission rates have been found to be both significant (Hachem et al., 2014; Mitchell, 2015; Schmocker et al., 2015) and

nonsignificant (Yang, Liu, Huang, & Mukamel, 2018). Additionally, discharge readiness has demonstrated a significant relationship to 30-day readmission rates (Boulding, Glickman, Manary, Schulman, & Staelin, 2011; Goldstein, Hicks, Kolm, Weintraub, & Elliot, 2016; Kemp, Quan, & Santana, 2017; Mitchell, 2015). In contrast, Hachem et al. (2014) and Schmocker et al. (2015) found this relationship to be nonsignificant.

In regard to readmissions, CMS has identified 30-day ACHR rates as a marker for quality outcomes (Hospital Compare, n.d.). This quality marker is intended to reflect the quality of care delivered in a hospital environment (Graham et al., 2017; IRI Consultants, 2015). Unfortunately, data specifically addressing 30-day ACHR rates and the HCAHPS composite scores of nurse communication, physician communication, and discharge readiness are limited (Goldstein et al., 2016; Kemp et al., 2017). However, multiple articles have used 30-day readmission rates without specifying whether the variable is all-cause or linked to specific medical conditions (Boulding, Glickman, Manary, Schulman, & Staelin, 2011; Cleveland Clinic Orthopaedic Arthroplasty, 2017; Hachem et al., 2014; Mitchell, 2015; Salinas, 2017; Schmocker et al., 2015; Yang et al., 2018).

This study addressed a gap in information related to the relationship between HCAHPS survey results regarding nurse communication, physician communication, discharge readiness, care transition, and the global item of overall rating of the hospital and the quality indicator of 30-day ACHR. Although these variables have been researched individually, there is little research available using the combination of all five independent variables. Furthermore, this study specifically addressed 30-day ACHR rates, as this is a main focus of CMS via the Hospital Readmissions Reduction Program

(HRRP) in increasing quality care in acute care hospitals (CMS, 2019). Finally, my study focused on two South Atlantic states rather than a national population to investigate predictive relationships and possible differences between these two states when evaluating HCAHPS survey results and 30-day ACHR rates.

By addressing a gap in the literature, my study may provide hospital administrators with scientific data to develop initiatives and assist in formulating plans to reduce 30-day ACHR rates by targeting and understanding the impact that HCAHPS survey results have on readmissions.

Problem Statement

The research problem addressed in my study was lack of information about the relationship between patient perception of care as measured by HCAHPS survey results and the quality indicator of 30-day ACHR rates in the South Atlantic region of the United States. Although the implementation of the HCAHPS survey has improved patient satisfaction (Elliot et al., 2015), the evidence is conflicting regarding the association between HCAHPS survey results and the quality of care provided by health care organizations (Salinas, 2017; Westbrook, Babakus, & Grant, 2014). The majority of research regarding the HCAHPS survey is focused on the domains of staff responsiveness, provider communication, and overall quality rating of the hospital and thus does not encompass the totality of care provided. To add further complexity to the matter, quality care is a fluid concept that includes not only patient perception, but also quality indicators such as medical errors, hospital-acquired conditions, and 30-day hospital unplanned readmission rates.

The relationship between patient perception and quality care was created in an effort to improve positive outcomes in healthcare. With the Deficit Reduction Act in 2005 and focus placed on VBP, CMS introduced and implemented the HCAHPS survey as an opportunity for patients to indicate their perspectives on healthcare, providing empirical data that would ultimately be tied to reimbursement for health care systems (CMS, 2017c; Giordano et al., 2010).

With overall costs increasing in health care, it is imperative to study the potential causes or relationships of readmissions to inform administrators and frontline staff of possible improvements to policy and procedures to reduce overall costs. Mayr et al. (2017) used the 2013 Nationwide Readmissions Database, representing 21 states, to perform pairwise comparisons and regression analyses to study the cost impact of readmissions on the health conditions of acute myocardial infarction (AMI), heart failure, COPD, and pneumonia. The estimated mean cost for readmission was $10,070 for sepsis, $8,417 for COPD, $9,051 for heart failure, $9,424 for AMI, and $9,533 for pneumonia.

My study addressed a gap in the literature regarding the relationship between patient perception of care as measured by HCAHPS survey results and the quality indicator of 30-day ACHR rates in two South Atlantic states in the United States.

Purpose

The purpose of my quantitative analysis was to examine the relationship between patient perception of care as measured by HCAHPS survey results and 30-day ACHR rates at acute care hospitals in two South Atlantic states in the United States. The dependent variable (DV) was 30-day ACHR rates. The independent variables (IVs) were

defined by the HCAHPS domains of nurse communication, physician communication, discharge care and transition, and overall rating of the hospital. The covariates of my study included number of staffed beds, total expense, payroll expense, number of admissions, number of personnel, hospital ownership, and teaching status.

Research Question and Hypotheses

The research question for the study was the following: Do patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two South Atlantic states when controlling for number of staffed beds, total expense, payroll expense, number of admissions, number of personnel, hospital ownership, and teaching status?

H_{o1}: Patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, do not significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two South Atlantic states when controlling for number of staffed beds, total expense, payroll expense, number of admissions, number of personnel, hospital ownership, and teaching status.

H_{a1}: Patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, do significantly contribute to the percent change of

R^2 variance in hospital readmission rates at acute care health organizations

in two South Atlantic states when controlling for number of staffed beds,

total expense, payroll expense, number of admissions, number of

personnel, hospital ownership, and teaching status.

The DV of 30-day ACHR rates is calculated as an index number by CMS and

made available on the CMS-sponsored Data Compare website. The IVs are also

calculated by CMS and made available through the same website. Each domain is

presented as "top-box scores" and utilizes a patient-mix algorithm to standardize scores

for comparison throughout multiple health care organizations (CMS, 2017a).

Theoretical Framework

The theoretical framework chosen to illustrate the relationship between health

care organizations and patient perception was social construction theory (SCT), as

defined by Schneider and Ingram (1993). SCT posits a political phenomenon that

advances the social construction of target populations and is influenced by policy designs

and agendas that serve to promote positively constructed target populations (labeled

"good") while punishing or withdrawing benefits from negatively constructed target

populations (labeled "bad") (Sabatier & Wielber, 2014; Schneider & Ingram, 1993).

With recent health reforms, elected officials have advocated for greater

accountability of health care providers for providing high-quality care and improving

patient outcomes. According to Schneider and Ingram (1993), the purpose of a policy is

to change behavior in order to achieve the goals of the policy. A major factor in

implementing policy is to address societal issues and concerns. In establishing policy,

elected officials must consider how target populations are connected to a problem and how the goals of policy can be attained. SCT provides a perspective on policy design and its effect on healthcare organizations that are socially constructed as positive or negative performers.

In considering SCT in regard to the topic of patient perception of care, the target populations are viewed as the healthcare organizations and patient populations. The policy shift from volume-based purchasing to VBP has created a system of rewarding high-performing hospitals by increasing reimbursement while withdrawing reimbursement from low-performing hospitals (Chee, Ryan, Wasfy, & Borden, 2016). Furthermore, HCAHPS measures patient perception of healthcare organizations, which in turn creates a socially constructed perspective on the organization. The factor of patient perception can then influence the social construction of not only healthcare organizations, but also other target populations in the healthcare system such as providers, frontline staff, and regulatory agencies. The theoretical framework will be further explored in Chapter 2.

Nature of the Study

The nature of my study was quantitative with a correlational approach, using a multiple regression analysis. This quantitative design assisted in understanding the relationship between the defined IVs (HCAHPS composite scores of provider communication and discharge readiness and the global item of overall rating of the hospital) and the DV of 30-day ACHR rate, controlling for staffed beds, total expense, personnel expense, admissions, hospital ownership, and teaching status. A correlational

approach is often implemented with the use of questionnaires or surveys to determine the statistical relationship between continuous variables by comparing the distribution of scores (Rudestam & Newton, 2015), making this an appropriate method. With multiple regression analysis, IVs are entered by the researcher in the order of choosing, which allows for the control of covariates and exploration of possible causal effects when predicting a DV (Laerd Statistics, 2018). The variables were defined using SCT as the framework.

For the research question, patient perception was further divided to contain five main IVs:

- The composite score of Nurse Communication (Q1, Q2, and Q3)
- The composite score of Physician Communication (Q5, Q6, and Q7)
- The composite score of Discharge Information (Q19, Q20)
- The composite score of Care Transition (Q23, Q24, and Q25)
- The global item of Hospital Rating (Q21)

The DV was 30-day ACHR rates (quality indicator reflecting the performance of hospital). The statistical analysis on these variables provided empirical data as to the relationship between patient perception of care, as evidenced by responses to HCAHPS questions, and the quality indicator of 30-day ACHR rate. These data may help to inform health policy on evaluating patient perception as well as guide health administrators in allocating resources.

Data for both the DV and the IVs were collected from the CMS-sponsored Data Compare website. The AHA was the source for the covariates. Data were entered into

SPSS v. 25 in a multiple regression analysis quantitatively examining the relationship between patient perception of care and 30-day ACHR rates.

Definitions

Data were collected on 30-day ACHR rates, nurse communication, physician communication, discharge information, care transition, and overall rating of hospital. In addition to the variables used, I defined several other key terms for the purpose of the study. These terms were defined as follows:

The Centers for Medicare and Medicaid Services (CMS): CMS was originally created in 1965 via the Social Security Act to assist the elderly (Medicare) and underserved (low-income families, pregnant women, people with disabilities, and people needing long-term care) in receiving health care. During its evolution, CMS has emerged as one of the main funding agencies for acute care hospitals. With the implementation of the Patient Protection and Affordable Care Act in 2010, CMS implemented VBP strategies with the intent of providing better care for individuals and better health for populations at a lower cost (CMS, 2018b).

Value-based purchasing (VBP): With a focus of quality rather than quantity, the VBP program guides CMS in reimbursing acute care hospitals with incentive payments. These payments are based on performance measures during a baseline period compared with other hospitals on the same measure. Also included in the calculation is improvement made on these measures compared to the baseline period (CMS, 2017c).

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS): The HCAHPS survey is a 32-item standardized national survey that is publicly reported

to demonstrate patients' perspectives on care provided in a hospital setting. The survey allows for objective, meaningful data that can be utilized when comparing acute care facilities at a state and national level. Additionally, it was created to offer transparent data to consumers so that not only would healthcare providers be accountable for decisions and treatments, but also consumers would have more personal knowledge when deciding on treatments and procedures (Health Services Advisory Group, 2017).

30-day all cause hospital readmission (ACHR): According to CMS (2017d), this is a "risk-standardized readmission rate for beneficiaries age 65 or older who were hospitalized at a short-stay acute care hospital and experienced an unplanned readmission for any cause to an acute care hospital within 30 days of discharge" (para. 1).

HCAHPS composite scores: The HCAHPS survey is divided into seven summary (or composite) measures, two individual items, and two global items. The composite measures are composed from two to three questions that summarize patient experience information, which contribute to the statistical reliability of the measures. The two global items summarize the overall rating of the hospital and if the patient would recommend the hospital to friends and family. For this study, four composite measures (nurse communication, physician communication, discharge information, and care transition) and one global item (overall rating of hospital) were used (CMS, 2018a). A list of all HCAHPS questions is available in Appendix A. The independent variables of composite measures consist of the following questions:

- Nurse Communication—This composite measure consists of Questions 1, 2, and 3.

- Physician Communication—This composite measure consists of Questions 5, 6, and 7

- Discharge Information—This composite measure consists of Questions 19 and 20.

- Care Transition—This composite measure consists of Questions 23, 24, and 25.

- Overall Rating of Hospital—This global item refers to Question 21.

Top-box scores: The Health Services Advisory Group (2019) defined top-box scores as

the most positive response to HCAHPS Survey items. The "top-box" response is "Always" for four composites (Communication with Nurses, Communication with Doctors, Responsiveness of Hospital Staff, and Communication about Medicines) and two individual items (Cleanliness of Hospital Environment and Quietness of Hospital), "Yes" for the Discharge Information Composite, "'9' or '10' (high)" for Overall Hospital Rating item, "Definitely yes" for Recommend the Hospital item, and "Strongly agree" for the Care Transition composite. (para. 3)

American Hospital Association (AHA) definitions: The following from the AHA (2016) were utilized as covariates:

- *Staffed beds*: The "number of beds regularly maintained." In other words, this is the total number of beds available for patients in the facility.

- *Admissions*: The number of patients accepted in a 12-month period for inpatient care.

- *Expense*: Over a 12-month period, the total amount of expenses for the facility, including payroll expenses.

- *Personnel*: The payroll expense that identifies current personnel at the end of a reporting period.

- *Hospital ownership*: This definition refers to the type of organization responsible for hospital operations and policies. This definition can further be classified into for-profit, nonprofit, and government owned (i.e., local, state, or federal).

- *Teaching status*: For the purpose of my study, teaching status refers to "approval to participate in residency training by the Accreditation Council for Graduate Medical Education" (p. A4).

Assumptions

Being that my study used secondary data, the major assumption of my study was that the data entered were factual and accurately represented hospital data for both readmission rates and patient satisfaction. The data published on Hospital Compare are received directly from CMS and therefore serve as the standard among healthcare organizations (CMS, 2018a). It was assumed that the statistical analyses completed by CMS were correct. Additionally, it was assumed that the responses given on the HCAHPS survey accurately represented each patient's (or caregiver's) perception of the care they received.

Scope and Delimitations

My study examined the relationship between patient perception, as measured by HCAHPS survey results for provider communication, discharge readiness, and overall rating of hospital, and the quality indicator of 30-day ACHR rates in two South Atlantic states in the United States. The selected area was chosen due to the lack of empirical evidence of the above-mentioned relationship in the geographical area. Although research has been performed on a national level, my study compared the relationship between patient perception of care and 30-day ACHR rates in a select area to determine if it is similar or different to that on the national level.

Acute care hospitals in the two South Atlantic states in the United States with completed HCAHPS datasets for both 30-day ACHR rates and HCAHPS survey results were included in the study. Facilities lacking complete data, or that did not report HCAHPS survey results, were excluded from analyses. Additionally, Veterans Administration and critical access hospitals were not included. Veterans Administration hospitals do not participate in HCAHPS and are not funded by CMS (CMS, 2016b). Furthermore, critical access hospitals typically serve a specific lower-income population with a disproportionately high level of uncompensated care, resulting in a nondiverse sample (Popescu, Fingar, Cutler, Guo, & Jiang, 2019). The 30-day ACHR rate was chosen as a quality indicator due to the increasing need for more empirical evidence related to this relatively new topic. Other quality indicators such as mortality rate and hospital-acquired infection rates have also been studied but have more available data.

In regard to generalizability, my study may impact surrounding regions in the South Atlantic; however, it might be limited in national generalizability due to regional differences in access to care and perceptions of care.

Limitations

As mentioned before, my study used secondary data readily available to the public for statistical analysis. For my study, I presumed that the data were accurate. Another limitation was the inability to determine patient case-mix (i.e., demographics of patient population) due to the statistical analysis of the data by CMS, which standardizes the results for better comparison between hospitals that serve different populations. Additionally, the statistical analysis used for my study demonstrated correlation, not causation, and therefore demonstrated the predictive, not causative relationship between HCAHPS scores and 30-day ACHR rates. Finally, the results of my study are not generalizable on a national level.

Significance

My research fills a gap in understanding concerning the relationship between patient perception of care, as scored by the HCAHPS survey, and the quality indicator of 30-day ACHR rates in two South Atlantic states in the southeastern United States.

In regard to the relationship between HCAHPS and quality outcomes, empirical data has demonstrated conflicting results. Increased staff responsiveness, better provider communication, and global satisfaction have shown significant relationships with decreased risk for readmission (Cleveland Clinic Orthopaedic Arthroplasty, 2017; Hachem et al., 2014; Salinas, 2017; Yang et al., 2018). In contrast, Hachem et al. found

that higher HCAHPS scores on discharge information resulted in an increased risk for readmission. Additionally, Yang et al. demonstrated that provider communication was not significantly associated with readmission rates. Further driving my study was the relatively recent focus by CMS (CMS, 2017d) on reducing 30-day ACHR rates and the emerging focus of healthcare organizations on reducing expenditures and ensuring that patients are receiving quality care (Stefan et al., 2012).

My study makes a unique contribution to the literature because it addresses the relationship between patient perception of care as measured by HCAHPS survey results and 30-day ACHR rates in acute care hospitals in two South Atlantic states in the United States. It contributes to the current health policy conversation regarding the factors affecting HCAHPS survey results and the impact of these results on the quality indicator of readmissions. The results of my study may assist in the development of health policy regarding reimbursement, resource allotment in health care organizations, and efforts to assess patients' perception of care effectively. In its analysis of the impact of HCAHPS results on the quality indicator of 30-day ACHR rates, my study may contribute to the assessment of the reliability and validity of this method, as well as to policy recommendations for future methods of assessing quality performance in health care organizations.

In regard to social change, the study may guide acute care organizations in the specified states to focus on the most impactful way to invest funds to provide patients with the highest quality care possible. By offering these organizations empirical data to guide areas of reimbursement to improve quality and reduce readmissions, the study may

assist organizations in using resources in the most effective way possible to improve quality outcomes.

Summary

The purpose of my quantitative study was to examine the relationship between patient perception of care, as evidenced by HCAHPS survey results and the quality indicator of 30-day ACHR rates in two South Atlantic states in the United States. Using SCT as the theoretical framework, the study addressed the research problem of minimal evidence as to the relationship between the dependent variable of 30-day ACHR rates and HCAHPS survey results on nurse communication, physician communication, discharge care, care transitions, and the overall rating of hospitals in two South Atlantic. Results of the study may be applied to reimbursement and resource allotment strategies for acute care health organizations in determining how to provide high quality care to patients. Chapter 2 provides more information on the theoretical framework and relevant scientific literature associated with the research question.

Chapter 2: Literature Review

Introduction

Healthcare expenditures in the United States have been increasing steadily. In 2016, these expenditures totaled $3.3 trillion. Medicare expenditures indicate that hospital readmissions cost the nation more than $17 billion in 2009 and has only continued to rise (Zohrabian, Kapp, & Simoes, 2018). In an effort to curb this spending, CMS implemented the Hospital Readmissions Reduction Program (HRRP), which reduced payments to hospitals with increased unplanned readmissions (CMS, 2019). Tied to this reduction was the incorporation of patient perception of care, as measured by HCAHPS survey results. As a result, healthcare organizations have been tasked with reducing readmissions and improving patient satisfaction and/or patient perception of care in order to maximize funding.

The research problem addressed in my study was the lack of literature examining the relationship between patient perception of care as measured by HCAHPS survey results and the quality indicator of 30-day ACHR rates in two South Atlantic states. Although HCAHPS composite scores have been studied, the relationship between the specific domains of provider communication, discharge readiness, and overall rating of hospital and 30-day ACHR rates has not been studied. Additionally, data from this specific region are lacking. With healthcare costs rising, CMS has restructured hospital reimbursement by tying patient experience and perception of care, as scored by HCAHPS, to funding. With this reform, health care administrators and other key

stakeholders in health care have also focused attention on empirical data to support policy and practice changes.

The purpose of my quantitative analysis was to examine the relationship between patient perception of care as measured by HCAHPS survey results and 30-day ACHR rates at acute care hospitals in two South Atlantic states, controlling for staffed beds, total expense, payroll expense, admissions, hospital ownership, and teaching status. The DV was 30-day ACHR rates. The IVs were defined by the HCAHPS domains of nurse communication, physician communication, discharge care and transition, and overall rating of the hospital. These IVs were chosen due to their impact on readmissions. To clarify, provider communication of discharge diagnosis, medications, and follow-up care are influential regarding patient readmissions. Likewise, discharge care and transition planning via multiple disciplines are imperative to avoid unplanned readmissions. Finally, overall rating of the hospital was chosen due to previous studies linking global ratings to patient satisfaction and readmission rates (Isaac, Zaslavsky, Cleary, & Landon, 2010; Klinkenberg et al., 2011; Salinas, 2017; Schmidt, 2004).

The current literature reveals that patient satisfaction is a multifactorial problem for patients, providers, and healthcare administrators (Baker, 1997; Beattie, Murphy, Atherton, & Lauder, 2015; Berkowitz, 2016; Fitzpatrick & Hopkins, 1983; Fox & Storms, 1981; Linder-Pelz, 1982; Tevis, Schmocker, & Kennedy, 2014). The majority of research available demonstrates a significant, positive relationship with patient satisfaction and quality patient outcomes (Isaac et al., 2010; Salinas, 2017; Schmocker et al., 2015). However, there is also conflicting evidence of an inverse relationship or no

relationship (Hachem et al., 2014; Sacks et al., 2015; Schmocker et al., 2015; Yang et al., 2018). Additionally, the concept of patient perception and satisfaction consists of multiple internal and external factors, making it difficult to ascertain and predict factors impacting satisfaction (Bleich, Özaltin, & Murray, 2009; Crow et al., 2002; Elliott et al., 2012; Iannuzzi et al., 2015; Johnston et al., 2015; Al-Amin, Schiaffino, Park, & Harman, 2018). I investigated empirical evidence of the importance of communication, discharge readiness, and overall hospital rating in reference to the quality indicator of 30-day ACHR rates. The development of HCAHPS as a standardized tool to evaluate patient perception has affected patient care and reimbursement, making the survey a critical tool for assessing quality care in the health care system.

This chapter includes the literature search strategy, theoretical foundation for the study, and rationale for choosing this theory. This chapter also includes a literature review related to the key variables and concepts of the study, such as healthcare reform, VBP, HCAHPS, the link of HCAHPS and quality care, composite scores and global ratings of HCAHPS, and hospital readmissions.

Literature Search Strategy

Several databases were used for this study, the first being Thoreau at Walden University. Based on the results from Thoreau, I was able to further dive into several databases covering the subjects of nursing, public policy and administration, human services, and health services. The electronic databases and search engines of CINAHL, Medline, ProQuest Nursing and Allied Health Source, Political Science Complete,

SocINDEX, PsycINFO, ProQuest Health and Medical Collection, and Google Scholar were searched for relevant literature.

Several search terms were used for this study: *patient perception, patient experience, patient satisfaction, customer satisfaction, HCAHPS, Hospital Consumer Assessment of Hospital Providers Survey, Affordable Care Act, value-based purchasing, quality care, quality outcomes, healthcare quality, provider communication, nurse communication, physician communication, readmissions, healthcare theories, and social construction*.

Originally, the time frame I used was from 2013 to the present day; however, with the creation of HCAHPS and the implementation of the Affordable Care Act in 2002, the range was extended to account for early literature as well. Additionally, the theoretical framework of SCT and its use in healthcare was originally published in 1993, extending the date range even further. I searched for not only peer-reviewed research articles, but also government reports and websites and previous Walden University student dissertations.

Theoretical Framework—Social Construction Theory

The theoretical framework chosen for this study was SCT, as interpreted by Schneider and Ingram (1993), in an effort to illuminate the relationship between patient perception and health care organizations. According to Ingram, Schneider, and Deleon (2007), their adaption of SCT to reflect policy design was rooted in the belief originally described by Karl Manheim that there is no definite view of reality, in that reality may only be interpreted—especially in the social sciences. Schneider and Ingram were the

first authors to apply SCT to policy design, define target populations, and address how these populations are assigned benefits and burdens by political officials and organizations.

SCT posits the existence of a political phenomenon that advances the social construction of target populations and is influenced by policy designs and agendas that promote positively constructed target populations (labeled "good") and punishes or withdraws benefits from negatively structured target populations (labeled "bad") (Sabatier & Weible, 2014; Schneider & Ingram, 1993).

According to Ingram et al. (2007), there are two main facets of target populations in SCT: political power and social construction. Using these two dimensions, four target populations are formed: *advantaged*, *contenders*, *dependents*, and *deviants*. These groups are not clearly defined but rather are conceptualized as a "policy space," meaning that the lines defining these groups are often blurry, as one group can be viewed as both positive and negative. For example, single mothers may be viewed sympathetically as dependents, with government (local, state, or federal) creating policies to help due to the perceived need. In contrast, other societal groups may view this target population as deviant, naming immorality as the reason for single motherhood, and therefore create policy that does not appoint benefits (Schneider & Ingram, 1993).

As a result of such social construction and power distribution, policy design is often aimed at further engraining social construction, preserving power dynamics, and promoting institutional cultures. The effect of such policy design is that the positive and

negative notions of each target population become inflated in an attempt to rationalize policies that endorse benefits and burdens (Ingram et al., 2007).

Social Construction of Target Populations

Advantaged. Members of the advantaged target population enjoy positive social construction and high political power. They are viewed as "deserving" and therefore receive a greater portion of benefits regarding public policy. Burdens are typically voluntarily imposed or created by a code of ethics that is established within the group, rather than coming from society (Ingram et al., 2007, p. 101). Politically, these target populations are defined as small business owners, military organizations and personnel, and scientists.

Contenders. Members of this target population, while maintaining high political power, are often viewed negatively by the public. According to Ingram et al. (2007), these groups are viewed as "selfish, untrustworthy, and morally suspect" (p. 102). Historically, these groups have received benefits, but in a hidden manner so as not to notify the public and society in order for legislators to not openly acknowledge the fact that more benefits are ascribed than burdens. Such target populations as large corporations, labor unions, and gun manufactures have been described as contenders.

Dependents. The dependent target population has low political power yet is viewed positively in social construction. This group is viewed as deserving but primarily with a sense of misfortune and sympathy. Despite positive social construction, this group does not contain the political power necessary to greatly impact policy and receive

greater benefits in regard to policy. According to Ingram et al. (2007), even when policies are created for this group, they are "heavy on rhetoric and low on financing" (p. 102).

Deviants. The final target population is low on political power and social construction. This group is viewed as the "underclass" and has often been blamed for the wrongs in society in previous research (Ingram et al., 2007, p. 103). Unfortunately, this perception is not always true; however, due to a broader social and political system, this group is ascribed more burdens than benefits and can rarely overcome these perspectives to gain resources or positive views. Typically, this target population consists of criminals, illegal immigrants, gang members, and similar populations.

Historical Use of Social Construction Theory in Healthcare

SCT has been used in a variety of studies regarding both health and politics. In reference to my study, however, three main articles contributed to the understanding of SCT and HCAHPS. Conrad and Barker (2010) studied the social construction of illness and found several points regarding the cultural meaning of illness. First, the social construction of illness influences how patients perceive their own medical conditions. The authors found that while illness is not in itself stigmatizing, it is the way in which society reacts, certain manifestations of the illness, and the "types" of people who suffer from the illness that build the social construction of the illness. Second, one the of the key findings of the study was that "compliance" is related to patients' ability or desire to follow medical directions. However, by switching to a "context-centered" strategy, patients can modify their behavior in such a way that allows for individual interpretation

and coping with the illness. This perception of illness can then impact their perception of care in healthcare organizations, impacting HCAHPS scores for healthcare organizations.

Looking to the use of SCT and policy in the context of Medicare and Medicaid, Piatak (2017) analyzed the implementation and evolution of the federal program of Medicare and the state execution of Medicaid. With the creation of Medicare by the Social Security Amendment of 1965, language such as "deserving" and "beneficiaries" was used to imply that the social insurance of Medicare was for those individuals who had paid taxes by working and therefore made them an advantaged population receiving benefits and resources from the federal government. On the other hand, recipients of Medicaid were deemed "needy," and the public assistance program was executed at a state level. Based on state regulations, the allocation of Medicaid programs varies across the nation, creating an even wider gap between the benefits received by the advantaged population of Medicare beneficiaries and those under Medicaid.

In a related study, Schroedel and Jordan (1998) studied the progression of policy making in regard to AIDS policy. The authors chose this topic due the social construction surrounding AIDS and the stigmatization of the illness (i.e., its association with stigmatized groups such as homosexuals and drug users) or the viewpoint of innocent victims (i.e., individuals contracting AIDS through blood transfusions). The authors analyzed 30 roll-call Senate votes on AIDS legislation, beginning with the original policy in 1987 through 1992. While not all of the data aligned with SCT, they did find that patterns emerged, with favorable votes awarding benefits consistently noted for the advantaged population (veterans and health care workers), whereas the deviants (i.e.,

intravenous drug users, criminals, prisoners, and foreigners) were frequently overlooked in regard to favorable votes. Furthermore, the contender group (gay and bisexual men, general population with AIDS) often received substantive policy benefits and symbolic burdens and punishments. This finding further supported the desire for senators and public officials to show support for this group, while also placing burdens that would appear to the public to be punishment but that were, in reality, neither actionable nor effective.

Rationale for Choosing Social Construction Theory in Present Study

In accordance with the push for greater accountability in health care, elected and appointed officials have been tasked with ensuring that high-quality care is provided for health care consumers. According to Schneider and Ingram (1993), the purpose of a policy is to change behavior in order to achieve policy goals. Societal topics and problems comprise a large portion of current policy needs. One of the main concerns in establishing policy is the consideration of target populations, how these populations are affected by such policy, and whether these policies can effect change. SCT provides a perspective on the connection between policy design and healthcare organizations that are socially constructed as positive or negative performers.

SCT was chosen as the theoretical framework for my study due to the strong connection between healthcare policy and quality outcomes for patients. In reviewing the literature, I found a gap in how social construction can be applied to the target populations of regulatory agencies, health care organizations, and patient perceptions of care, specifically in relation to HCAHPS results. The policy shift from volume-based

purchasing to VBP has created a system of rewarding high-performing hospitals by increasing reimbursement and withdrawing reimbursement from low-performing hospitals (Chee et al., 2016). Furthermore, HCAHPS measures patient perception of healthcare organizations, which in turn creates a socially constructed perspective on the organization. The factor of patient perception can then influence not only the social construction of healthcare organizations, but also other target populations in the healthcare system such as providers, frontline staff, and regulatory agencies.

My study expanded on SCT in reference to present-day healthcare policy by examining the relationship between policies and quality outcomes while defining target populations within healthcare and how social construction further perpetuates benefits and burdens assigned to these target populations. However, how to define target populations was not clearly explained by Schneider and Ingram (1993), who offered little guidance on where to place target populations with potential for positive or negative social construction as well as political power, according to Schroedel and Jordan (1998). Therefore, for my study, the structure by Schroedel and Jordan was implemented to define target populations. First, the authors selected specific target populations related to the study topic. Unfortunately, SCT as outlined by Schneider and Ingram only allowed for dichotomous grouping. The authors stated that in those cases that might be labeled as two different categories depending on the perspective used (i.e., a target population that may be defined as both deviant and dependent), the target populations were compared to each other. For example, the political power of homosexuals was a debatable topic, and therefore the authors compared their political power to such target populations as

criminals and intravenous drug users to determine whether to place homosexuals in the contender or deviant group. Additionally, the authors used Gallup polls to validate the social construction of target populations.

Using the structure provided by Schroedel and Jordan (1998), the target populations for my study are visually represented in Figure 1.

		Social Construction	
		Positive	**Negative**
Power	**Strong**	*Advantaged* • Regulatory Agencies • Patients • High-Performing Healthcare Organizations	*Contenders* • Hospital Administrators • Political & Financial Market
	Weak	*Dependents* • Frontline Staff • Physicians	*Deviants* • Low-Performing Healthcare Organizations

Patient Perception

Note. Adapted from Schneider and Ingram (1993)

Figure 1. Social construction theory in healthcare.

Advantaged. Within the context of health care, the advantaged population consists of regulatory agencies (i.e., CMS), patients, and high-performing healthcare organizations. Not only do these groups have strong political power in terms of policies, they are also viewed by the public as deserving of such policies. Therefore, policies aimed at these groups allocate benefits such as increased resources.

Contenders. This target population consists of healthcare administrators, the political market, and the financial market. Hospital administrators have a moderate amount of power in terms of implementing policies at healthcare facilities in alignment with federal and state policies, but can be viewed by frontline staff and consumers in a negative social construction.

Dependents. The dependent target population consists of the frontline staff and physicians. These groups of people are viewed positively by consumers but have little political power to impact resource allotment and policy change.

Deviants. This group consists of low-performing healthcare organizations. These organizations have difficulty meeting quality and patient perception standards and are therefore penalized with decreased funding and other necessary resources.

As demonstrated in Figure 1, patient perception influences all categories, both positively and negatively. This influence then impacts not only the social construction of these target populations but also how policy, benefits, and burdens are distributed to these target populations.

In summary, the use of SCT in illness and policy making has demonstrated that the social construction of illness affects both the patients' perception of illness and health status. This perception can then affect how a patient perceives the care afforded by healthcare workers as noted in HCAHPS survey results. Additionally, with Medicare beneficiaries being viewed as the advantaged population, policies are continually established that favors this group, such as increased reimbursement based on positive patient perception.

Literature Review Related to Key Variables and Concepts

The creation of the HCAHPS survey created a solution for the inclusion of patient perception (also termed patient satisfaction or patient experience) in the evaluation of quality outcomes in acute care hospitals. The focus of VBP over volume-based purchasing began the reform that ultimately evolved to the implementation of HCAHPS survey as the first nationally standardized survey to evaluate patient perception.

As healthcare shifted, increased attention was placed on strategies to reduce cost, improve patient satisfaction, and promote high-quality outcomes. The following section describes the shift in health care and the empirical data presented in the relationship between HCAHPS survey results and quality care in acute care hospitals.

Healthcare Reform

According to the National Healthcare Expenditure Accounts (2018), in 1980 Medicare expenditures totaled $37, 387,000 compared with $672, 093,000 in 2016. With the cost of healthcare rising exponentially, several initiatives were created to not only decrease these costs but to ensure that the focus of health care was to provide high quality care in an efficient manner.

The Social Security Act of 1935 created programs that provided for the elderly, injured, handicapped, and other disadvantaged groups. Medicare, a health insurance program for the elderly and disabled, was one of the entitlement programs created from this policy (Martin & Weaver, 2005). An entitlement program is a federal program that binds the Federal government to make payments to eligible persons with loss of payments giving said persons legal recourse (United States Senate, n.d.).

With the federal government being obligated to pay for health insurance through Medicare and a rise in the elderly from the baby boomer population, health care costs rose quickly. In an effort to reform health care, the Patient Protection and Affordable Care Act (often referred to as ACA) was implemented in 2010 (Rosenbaum, 2011). This act placed the Department of Human Health and Services (HHS) in charge of improving quality and increasing patient-focused treatments in an effort to reduce healthcare expenditures. One aspect of this act was the emphasis on VBP. VBP began a new focus in health care—no longer on the quantity of interventions (volume-based) but rather a focus on quality outcomes for patients. Inpatient hospitals began to receive incentive payments for the treatment of Medicare patients that rewarded quality outcomes and improved patient experience of care (CMS, 2016; CMS, 2017; Szablowski, 2014).

CMS is the federal, regulatory agency that is in control of establishing and implementing quality standards to health care organizations across the nation. In connection with CMS, the National Quality Forum (NQF) endorses these quality measures and standards. The Hospital Inpatient Quality Reporting (IQR) program is another stakeholder in evaluating clinical processes of care. This program initially was instituted to mandate hospitals publicly report quality measure data to inform consumers regarding their health care choices (Szablowski, 2014).

Before the passage of ACA, several factors led to the increased cost of Medicare. First, advanced technology resulted in new treatments and diagnostic tools available for patients in regard to health management. Second, with the aging population, a rise in chronic conditions manifested and placed an additional burden on the health care system.

Finally, and most notably influential on VBP, was the continued use of a fee-for-service system by health care practitioners that encouraged quantity, rather than quality (Asplin, 2010).

Value-Based Purchasing

VBP is not simply a paradigm shift in health care reimbursement but rather a system involving several factors. In an analysis of the state of VBP, Chee et al. (2016) found three main influences on the structure and implementation of VBP. First, the external environment consisting of quality improvement initiatives that target regulatory and policy changes coupled with patient preference can impact the success of VBP. Second, provider characteristics such as the structure and culture of an organization influences the resources available and the ability to serve patient populations in the health care organization. Finally, VBP features such as specified patient populations and the risk structure that forms the framework of goals and incentives can promote or thwart the success of the program.

In 2013, participating inpatient hospitals experienced a 1% reduction in reimbursement from the Diagnosis-Related Group (DRG) system. In 2014, this reduction went to 1.25%, in 2015 1.5%, in 2016 1.75%, and for subsequent years, 2%. This reduction in funds was transformed into incentive payments for hospitals meeting quality and patient experience standards established by CMS. Incentivized payments through the VBP program consist of two domains: clinical process of care and patient experience of care. The clinical processes of care domain comprises 70% of the weighted value while

patient experience comprises 30%. CMS statistically analyzes these two domains and rewards funds based on total scores (CMS, 2017).

The intention of VBP was to enforce high-quality, patient-centered care. Furthermore, the goal of VBP is to link clinical outcomes to patient experience with the belief that increased patient satisfaction of experience would result in better patient outcomes. In a cross-sectional analysis of 1,866 hospitals in the United States, Haley, Hamadi, Zhao, Xu, and Wang (2017) found that hospitals with higher patient experience scores in HCAHPS scores had higher quality outcomes; for every one-unit increase in patient experience, there was a 0.06 significant increase in quality outcome scores. The authors also found other factors to significantly influence patient outcomes such as hospital ownership, bed size, and teaching status. The analysis found a significantly positive relationship between hospital HHI and patient outcomes. HHI (Herfindahl-Hisrchman Index) is used by healthcare organizations to measure market concentration. The HHI is interpreted numerically from zero (indicating perfect market competition) to 10,000 (indicating a monopoly). In summary, hospitals with less market competition experienced better outcomes.

Unfortunately, VBP did not have the intended effect for all hospitals. In a study by Das et al. (2016) the authors found that of 2,679 US hospitals, the data comparing high- and low-spending hospitals demonstrated a relatively weak positive relationship between episode spending and overall quality. In fact, low spending hospitals were often rewarded despite having outcomes that were significantly worse than high-spending hospitals. Overall, while high-spending hospitals had moderately better performance in

regard to quality outcomes, patient experience at these same hospitals were inferior compared to low-spending hospitals and were more apt to be penalized as a result. The authors found that hospitals with significantly better quality outcomes were for-profit, utilized more staffed beds, and were nonteaching hospitals. These results should give the healthcare community pause in analyzing correct distribution of funds as it relates to performance on both quality outcomes and patient experience.

In a similar vein, Ryan, Krinsky, Maurer, and Dimick (2017) compared improvements in clinical care processes and patient experience and did not find a significant relationship in hospitals with VBP programs. The authors found no significant relationship between the VBP program and decreased mortality in acute myocardial infarction or heart failure. However, there was a significant reduction in mortality for patients with pneumonia. Again, this study supports the lack of effectiveness and meaningful improvements in VBP, despite programs such as HRRP demonstrating a reduction in readmissions for the above conditions.

With the patient experience domain score comprising 30% of hospital VBP performance score (Agency for Healthcare Research and Quality, 2012), attention has quickly turned to improving and maintaining HCAHPS scores.

Hospital Consumer Assessment of Healthcare Providers and Systems

The HCAHPS survey was created as a response for acknowledgement of patient experience in health care. With VBP replacing volume-based purchasing, accurately representing patient perception regarding care received in the health care system was necessary. Prior to the HCAHPS survey, multiple questionnaires and surveys were

available; however, these methods were not standardized throughout the nation (Siegrist, 2013; Urden, 2002). Without standardization, accurate comparisons of hospitals on a local, state, and federal level was challenging.

HCAHPS was not the first patient satisfaction survey in health care. In 1985, Dr. Irwin Press and Dr. Rod Ganey, created a scientifically designed survey to address the problem of ascertaining patient satisfaction with health care. This survey paved the way for other firms, like Gallup and the National Research Corporation, to enter the new arena of competition in health care. This competition stimulated health care practitioners and scientists to define best practices in improving patient satisfaction scores in both inpatient and outpatient settings (Siegrist, 2013).

The development of the HCAHPS survey began in 2002, in a joint effort by the AHRQ and CMS. The development addressed the need for case-mix adjustment, information valuable to the consumer, and exploratory factor analysis in the items established in the survey. Initially, the survey was available on a voluntary basis but soon after the implementation, HCAHPS was then tied to the Annual Payment Update (APU) for Inpatient Prospective Payment System (IPPS) for the 2008 fiscal year. The expectation that hospitals not reporting this measure would be subject to a 2% reduction in APU quickly changed the voluntary basis of reporting to a mandatory reporting for those hospitals wanting to maintain reimbursement (Giordano et al., 2010).

The HCAHPS survey contains 27 items in patient perception of care and experience. There are six composite measures, two individual items, and two global ratings. The six composite measures consist of communication with nurses,

communication with doctors, responsiveness of hospital staff, pain management, communication about medicines, and discharge information. The two individual items are cleanliness of hospital and hospital environment. The two global ratings are overall rating of hospital and willingness to recommend hospital. Additionally, the survey queries demographic information for case-mix adjustment (Giordano et al., 2010).

The survey is distributed to patients 18 years and older with a medical, surgical, or maternity care diagnosis with an overnight stay of "inpatient" (not "observation") and who are alive at discharge or without a hospice diagnosis. The survey is approved in four methods: mail, telephone, mail with telephone follow up, and interactive voice response. The survey is issued to patients by random selection between 48 hours and 42 days after discharge. A benchmark of 300 completed surveys is expected during a rolling four quarter or twelve-month period (Giordano et al., 2010).

The HCAHPS survey serves several purposes. First, it allows for the collection of data in a standardized method allowing hospitals to provide meaningful data to consumers when comparing hospitals either regionally or nationally. Second, with a standardized system of data reporting, hospitals have incentives for improving and maintaining quality care for patients and consumers. Finally, the survey creates accountability and transparency when reporting patient experience and other quality outcomes. (CMS, 2017b).

In order to link patient perception of care with quality outcomes and reimbursement, quality is frequently emphasized over quantity. Hospitals receive financial rewards from CMS for the quality care provided to Medicare patients,

adherence to evidence-based clinical practices, and success for provision of care in acute care hospitals. With VBP, CMS offers incentive payments based on performance compared to geographically related hospitals and improvement on such performances during specified periods. Under hospital VBP there are four domains, each weighted at 25%, with several measures under each domain. These domains are safety, clinical care, efficiency and cost reduction, and patient- and caregiver-centered experience of care/care coordination. The HCAHPS survey falls under the last category. CMS implements algorithms to evaluate performance benchmarks and thresholds on these domains and rewards incentives based on these findings (CMS, 2017c).

   Reliability and validity of Hospital Consumer Assessment of Healthcare Providers and Systems. With patient perception of care associated with reimbursement, more research has targeted the validity and reliability of HCAHPS. Despite the scientific analysis required for the creation of HCAHPS, researchers have questioned the reliability and validity of the survey. With the establishment of HCAHPS, a standard of .80 was set by HCAHPS developers (Giordano et al., 2010). While meeting the minimum reliability standard of .70 (Frost et al., 2007), weak reliabilities have been found in several constructs including nurse communication, physician communication, discharge information, and medicine communication (Keller et al., 2005; Westbrook et al., 2014). Furthermore, Westbrook et al. found a lack of discriminant validity in communication with doctors and pain management, meaning that these measures failed to capture distinct meanings. Crow et al. (2002) also conducted a systematic literature review finding that method of survey, survey timing, and low response rates can introduce bias into the

evaluation of HCAHPS survey results, lowering the accuracy of such assessments. A more recent systematic literature review by Tevis et al. (2014), found multiple inconsistencies regarding factors impacting patient satisfaction. Not only were inverse relationships found but several questions were raised such as the possibility of unidentified factors in response bias and varying methodology (i.e. time periods, patient versus hospital level, geographic location). Also, the authors proposed the HCAHPS survey does not consider the differing needs of disease-specific variables, nor does it account for the timing of the survey in relation to potential complications.

      Quality and Hospital Consumer Assessment of Healthcare Providers and Systems. The purpose of the HCAHPS survey is to standardize the evaluation of patient perception of care, notably for inclusion in calculating reimbursement amounts for hospitals. Previous to this implementation, quality outcomes were consistently used as performance outcomes without regard to patient perception. The Agency for Healthcare Quality (AHRQ) uses the IOM's definition of quality as "the degree to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (para 1)." Additionally, the AHRQ lists the domains of effectiveness, efficiency, equity, patient centeredness, safety, and timeliness as crucial components to high quality health care (Agency for Healthcare Research Quality, 2018).

      With these considerations in mind, healthcare organizations acknowledged that patient satisfaction is a proven mediating variable to several quality outcome variables. Furthermore, patient satisfaction can also reflect organizational change and can provide

valuable data in evaluating system processes and outcomes (Bell, Krivich, and Boyd, 1997).

In contrast, quality as defined by front-line staff can evoke an entirely different meaning. Burhans and Alligood (2010), in a qualitative study found that nurses defined quality not only by clinical outcomes but also with empathy, caring, advocacy, intentionality, respect, and responsibility. The study also adds that nursing care, one dimension examined in HCAHPS, seeks to impact patients in a positive way and agrees with improving clinical outcomes.

Patient perception and Hospital Consumer Assessment of Healthcare Providers and Systems. With the purpose of HCAHPS reflecting the standardization of the patient perception evaluation, a main concern of researchers is defining the term. One of the most difficult tasks for researchers is to delineate a universal definition of patient perception. Due to this struggle, the term patient perception is commonly interchanged with patient experience and patient satisfaction.

The focus of patient-centered care is important in increasing the value of health care and decreasing unnecessary patient utilization of health care services, a positive outcome for both patients and healthcare organizations (Bertakis & Azari, 2011). The experience of patients within a healthcare system has risen to one of the key domains in VBP and quality analysis (Mohammed et al., 2016). With the advent of patient-centered care, organizations were encouraged to develop surveys reflecting patient satisfaction without connecting social or psychology theories in order to develop scientifically based evaluations. However, confusion surfaced regarding not only the proper definition of

patient satisfaction but how this concept was integrated with quality care (Dubbin, Chang, & Shim, 2013). For example, patient satisfaction has been touted as merely an attitude without consideration for internal or external factors (Baker, 1997) or as the intersection of patient expectations and experience (Beattie et al., 2015).

To further complicate the issue, patient satisfaction and experience are used interchangeably. Apart from the previous definition of satisfaction, patient experience aims to address the actions and/or behaviors that impact patients and the magnitude that patient's requests are met (Beattie et al., 2015). Berkowitz (2016) added that both direct and indirect experiences in healthcare, specifically communication, influences a patient's satisfaction. The author goes on to state that a patient's experience does not always reflect the quality of care provided but is influenced by preconceived expectations related to their diagnosis and other social factors. Adding to this notion, Sofaer and Firminger (2005), argued that since patient experience varies because patients' expectations shape their judgement, patient satisfaction is difficult to ascertain. Additionally, Conway and Willcocks (1997) previously established that many of the patient-centered models lack distinguishing factors between actual experience and perceived experience. In this case of disconfirmation, or the phenomenon when experience and expectations are misaligned, dissatisfaction can often occur. Therefore, without a universally accepted, standardized term, survey instruments and research are lacking construct validity.

Yet another issue regarding patient perception is the drive for hospitals to increase satisfaction, which can be at odds with what is medically best for the patient, creating an ethical dilemma (Piper & Tallman, 2016). Kelly, Johnson, and Harbison (2016) in a

qualitative study found that 98% of emergency department physicians believed regulatory, reimbursement organizations placed patient satisfaction as such a high priority that an environment has evolved where exploitation is a frequently occurring phenomenon.

Factors Contributing to Patient Perception and Satisfaction

Multiple factors are involved in patient satisfaction including individual perspectives and conditions (Baker, 1997; Fox & Storms, 1981), personal beliefs and expectations (Baker, 1997; Linder-Pelz, 1982), gratitude bias (Beattie et al., 2015), and social expectations related to sense of self (Fitzpatrick & Hopkins, 1983). Donadbedian (as cited in Gill and White, 2009) offered that a patient's satisfaction, or lack thereof, is related to the interpersonal process of care. Donadbedian proposed that the processes of health care (i.e., treatment or patient education) effects the outcomes of health care (i.e., health status or patient satisfaction). Furthermore, Dozier, Kitzman, Ingersoll, Holmberg, and Schultz (2001) argued that without proper instruments, it is difficult to assess the difference between expectations of care and whether the patients' needs were met.

Socioeconomic factors have also been found to affect a patient's perception of their care (Arpey, Gaglioti, & Rosenbaum, 2017; Baker, 1997; Morris, Yang, & Flower, 2017). Socioeconomic factors can lead to differing insurance levels, which can also impact satisfaction (Kahn, Iannuzzi, Stassen, Bankey, & Gestring, 2015). Additionally, race and ethnicity can affect patient satisfaction (Barr, 2004; Benkert, Peters, Clark, & Keves-Foster, 2006; Brooks-Carthon, Kutney-Lee, Sloane, Cimiotti, & Aiken, 2011; Elliott et al., 2012; Iannuzzi et al., 2015; Morris et al., 2017). Brooks-Carthon et al. found

that hospitals with a high concentration of African Americans reported less satisfaction with their care. Similarly, Goldstein, Elliott, Lehrman, Hambarsoomian, and Giordano (2010) demonstrated that non-Hispanic white inpatients, consistently report better care experience than by minority patients. Many of these disparities also include a mediating factor of site of care, with minorities typically receiving care at lower-performing hospitals (Hasnain-Wynia et al., 2010).

Likewise, age can affect patient satisfaction, with older patients reporting higher satisfaction with care (Crow et al., 2002). In a more specific stance, DeVoe, Wallace, and Fryer Jr. (2009), found that patients aged 18-64, were less likely to respond with "always" when completing HCAHPS surveys, which ultimately affect HCAHPS scores. Yet another factor in determining patient satisfaction is gender with women reporting fewer positive experiences than men (Elliott et al., 2012).

External factors have also been found to play a role in determining a patient's satisfaction. Concepts such as patient expectations and prior healthcare satisfaction (Bleich et al., 2009; Crow et al., 2002), health status (Crow et al., 2002; Elliott et al., 2012; Iannuzzi et al., 2015), type of care, and even immunization history contributed to variation when examining satisfaction with health care. Jha, Orav, Zheng, and Epstein (2008) found regional differences to be a contributing factor in HCAHPS results, although the authors state this relationship needs deeper exploration. Al-Amin et al. (2018) added that teaching status, market competition, and Medicare share of inpatient days impacts a hospital's ability to maintain high scores over time. Johnston et al. (2015)

contributed that ownership status, teaching status, percentage of Medicare payees, and regional status also has significant relationships with patient satisfaction.

Nurse staffing, also referred to as the nurse work environment, has been found to be a significant positive factor in patient satisfaction (Al-Amin et al., 2018; Bolton et al., 2003; Brooks-Carthon et al., 2011; Jha et al., 2008; Martsolf et al., 2016). Similarly, nurse staffing levels have been found to impact patient satisfaction by creating a social bond with patients that allows nurses to deliver quality care (MacEwan, 2014).

Composite Scores and Global Ratings of Hospital Consumer Assessment of Healthcare Providers and Systems Survey

The following section of the chapter will review the literature available related to the previously outlined independent variables: nurse communication, physician communication, discharge information, care transition, and overall rating of hospital.

Communication. Delving deeper into factors related to patient satisfaction and perception of care, multiple factors have been identified. A recurrent pivotal factor is the patient-provider relationship (Crow et al., 2002). In fact, one of the most strongly associated components to satisfaction is a patient's perception of the health care staff (Kahn et al., 2015).

Communication has been identified as a vital component in the provider-patient relationship leading to better patient adherence to medical regimes, improving quality outcomes, and increased patient safety (Institute for Healthcare Communication, 2011).

Nurse communication. One important aspect of the patient-provider relationship is nursing care. Patients seek patient-centered care from nursing in regard to providing

comfort, delivering education, and communication (Kol, Arıkan, Ilaslan, Akıncı, & Kocak, 2018). In fact, nursing communication has been identified as an essential link to the provision of quality care (Finke, Light & Kitko, 2008). Carter and Silverman (2016) found that up to 75 percent of the variance in the domain of patient satisfaction is due to nursing communication.

Physician communication. Another important aspect to the patient-provider relationship is physician communication and the physician's role in the patient-provider relationship. The importance of physician communication and the positive impact on the relationship has been a frequently studied topic. Al-Amin and Makarem (2016) demonstrated significant negative relationships in the organizational factors of for-profit ownership, hospital size, and the use of hospitalists. In contrast, a positive association with physician communication was found in physician ownership, Medicare inpatient days, and public ownership. Similarly, to nurse staffing, the authors also found that decreased physician staffing was negatively associated with patient perception of physician communication.

However, studies have also demonstrated no significant relationship. Turner et al. (2014) examined the relationship between physician continuity and communication and found that while patient satisfaction was lower with increased continuity, the results were not significant when associated with physician communication.

Discharge readiness. In reviewing literature for the concept of discharge readiness, two main domains were considered: discharge information and care transitions. Care transitions is a relatively new phrase used to capture the transition process from the

hospital to home or another healthcare facility as determined by changes in condition or needs (The Joint Commission, 2012). Using these two main concepts, the literature review focused on the discharge process and factors involved.

In 2013, the Care Transition Measure (CTM-3) was added to the HCAHPS survey to capture patients' preference for discharge needs, patients' understanding of discharge instructions, and patients' understanding for medication purpose at discharge. This measure has been found to be strongly associated with readmission, however, was not consistently associated with all clinical conditions identified by CMS (Goldstein et al., 2016). This reflects that while the care transition measure is associated with readmission, there is still more research needed specifically addressing medical conditions at discharge.

Schmocker et al. (2015) performed a retrospective analysis on patient satisfaction (physician and nurse communication, and overall rating for hospital), readmissions, and discharge readiness using two groups, those ready for discharge (RFD) and those less ready for discharge (LRFD). The authors found that those patients who were RFD had significantly higher scores on both physician and nurse communication, as well overall rating of the hospital. Interestingly, the authors found a weak association between readmissions and patient-reported readiness for discharge, possibly suggesting a mediating variable.

Overall hospital score. The overall score, or rating, of the hospital has been used by several researchers as a method to evaluate overall perception of care in hospitals (Isaac et al., 2010). Equally used as representation for overall satisfaction is "willingness

to recommend." For the purpose of this study, both items are included in the literature review. Multiple factors have been associated with overall rating. One of the most frequently cited is patient perception of nursing care having a positive significant relationship with overall satisfaction (Klinkenberg et al., 2011; Schmidt, 2004). It has been found that high overall ratings for hospitals have a significant positive correlation with quality outcomes in medical and surgical lines (Isaac et al., 2010) as well as decreased readmission rates (Salinas, 2017). Similar to the perception of nursing, patient perception of physician care, including courtesy and respect, have also been found to have a comparable correlation (Klinkenberg et al., 2011).

Another factor in predicting overall rating of hospital is age, with older patients being more apt to recommend hospitals than younger patients and older females more so than males (Klinkenberg et al., 2011). Physician communication has also been found to have the strongest correlation with overall hospital satisfaction, with nurse communication following. Additionally, educational attainment has been inversely associated with overall satisfaction (Chumbler, Otani, Desai, Herrmann, & Kurz, 2016).

Hospital characteristics and Hospital Consumer Assessment of Healthcare Providers and Systems. Previous research has identified the influence of hospital and organizational characteristics in patient perception. The findings by Otani, Deng, Herrmann and Kurz (2019) served as the foundation of hospital characteristics used in my study. The authors utilized staffed beds, total expense, payroll expense, admissions, and hospital ownership as variables in a hierarchical linear model to assess the impact these variables have on patient perception. The authors found that these characteristics

impact overall rating of hospital through physician, staff, and room attributes.

Additionally, payroll expense was not significantly associated with nurse, physician, or

room attributes proposing that salary was not a factor in patient perception in these areas.

These findings were in conflict with previous findings by Otani, Kim, Waterman,

Boslaugh, Klinkenberg, and Dunagan (2012) that resulted in a significant negative

association between patient perception and personnel spending.

Delving closer into the variables, the size of the hospital was found to be

associated with patient perception with larger hospitals scoring lower on patient

perceptions scores (Al-Amin & Makarem, 2016; Otani et al., 2019) and smaller hospitals

(less than 100 beds) scoring higher on patient perception (Johnston et al., 2015). In regard

to hospital ownership, for-profit hospitals scored lower on patient perception scores (Jha

et al., 2008; Johnston et al., 2015).

Another hospital characteristic that has been found to influence patient perception

is teaching status (i.e., a residency training program). Al-Amin et al. (2018) found that

those hospitals identified as teaching hospitals had greater odds at being long-term

sustainers of high HCAHPS scores. In contrast, Jha et al. (2008) found no significant

difference in global ratings of HCAHPS and teaching status. Similarly, Johnston et al.

(2015) found non-teaching hospitals scored higher on HCAHPS with a significant

relationship in all domains except willingness to recommend and discharge information.

Readmissions

CMS (2015) has defined the 30-day ACHR measure as "a risk-standardized

readmission rate for beneficiaries age 65 or older who were hospitalized at a short-stay

acute-care hospital and experienced an unplanned readmission for any cause to an acute

care hospital within 30 days of discharge (para 2)." The quality indicator of readmissions

is a relatively recent exploration. A mitigating factor for this exploration is the costs of

readmissions to the hospital. Friedman and Basu (2004) found that preventable

readmissions costs hospitals approximately $730 million, revealing several complex

problems in patient care. In 2012, the Affordable Care Act established the Hospital

Readmissions Reduction Program (HRRP) in an effort to increase quality care by

mandating financial penalties for those hospitals with excessive readmissions. The

establishment of this program, has increased the penalty up to 3% (Lu, Huang, &

Johnson, 2016). Evidence has been both positive and negative when analyzing

readmissions. Although, the increased focus has led to a multidisciplinary approach to

transition of care with both inpatient and community resources focusing on continuing

quality care after discharge to limit readmissions (McIlvennan, Eapen, & Allen, 2015).

Unfortunately, hospital characteristics such as socioeconomic status of

surrounding area, educational level, urban versus rural, ownership, bed capacity, case-

mix index, and teaching status make certain hospitals more at risk for increased penalties

(Boccuti & Casillas, 2015; Hu, Gonsahn, & Nerenz, 2014; Jindal, Gauri, Singh, &

Nicholson, 2018; Whitney & Odonkor, 2015). McIlvennan et al. (2015) argued that by

reducing reimbursement or implementing financial penalties on hospitals already serving

vulnerable populations, the health care system can further harm patients. Thompson,

Waters, Kaplan, Cao, and Bazzoli (2017) argued that many of the hospitals initially

receiving penalties are unable to reduce their penalty burden over time, leading to

financial distress. Other hospital characteristics such as ownership, teaching status, and safety net designation have also been found to impact readmissions (Rinne et al., 2017). To add to the complexity of the discharge and readmission process, barriers in the multidisciplinary approach can also negatively impact both readmission and patient satisfaction while attempting to have the opposite effect (Cruz, Fine, & Nori, 2017).

Diving further into readmission, Campione, Smith, and Mardon (2017) found that socioeconomic factors and clinical factors (i.e. medical or surgical) have been found to have a higher impact on readmissions than inpatient quality care, as previously suggested. Similarly, Stefan et al. (2012) found that hospital performance on CMS defined quality measures only accounted for less than 1% of the variation in readmission rates.

Another major factor impacting readmission is discharge quality with increased quality and understanding of discharge instructions associated with decreased readmissions (Brown et al., 2014). When specifically examining the HCAHPS domains of overall ratings and discharge care, Dy et al. (2016) found a statistically significant relationship with heart failure readmissions. Additionally, physician continuity, or lack thereof, was associated with increased odds for readmissions, although only one of the models tested showed significance (Turner et al., 2014)

A relatively new practice is involving pharmacists and medication-related programs to accurately evaluate and assess medication compliance and understanding. These programs have been found to have a significant odds reduction in readmission (Rodrigues et al., 2017) while also providing increased satisfaction with "communication about medicines" and "care transitions: understood the purpose of medications," both

important aspects to patient transition after discharge (Brantley et al., 2018). Although a relatively new concept, this incorporation of pharmacy staff when dealing with medications acts as an answer to previous studies highlighting patient identification of the need for a comprehensive, coordinated approach to discharge (Doos et al., 2015; Kemp et al., 2017). In addition to an integrated approach before discharge, Snodgrass, Babcock, and Teichman (2013) also found that pharmacy follow-up after discharge can reduce readmission, improve patient satisfaction, and even reduce drug related adverse events.

Patient perception and readmission. A key focus of my study is the association between patient perception (or satisfaction) and readmissions. In one of the first endeavors into this relationship, Boulding et al. (2011) found that patient satisfaction with overall care and discharge planning were significantly associated with decreased readmission rates. Mitchell (2015) added that when dealing with patient satisfaction regarding nurse communication, physician communication, and discharge instructions, the strongest significant relationship was with discharge instructions, reinforcing the importance of discharge readiness.

In contrast, data have also demonstrated no statistical relationship between perceptions of care, as defined by HCAHPS, and readmission rates (Sacks et al., 2015), especially because this relationship does not always reflect additional causative factors of readmissions (Whitney & Odonkor, 2015). Yang et al. (2018) found that neither nursing communication or physician communication was significantly associated with readmissions. Conversely, Hachem et al. (2014) found that while higher scores on provider communication was significantly associated with decreased readmissions,

higher scores on "help after discharge" had 30% higher odds for readmissions. Additionally, studies have also demonstrated that readmission rates not only reflect quality care in the hospital, but does not consider external factors once a patient is discharged from the hospital (Feemster & Au, 2014), such as discharge to rehabilitation facility (Graham et al., 2017). For example, in a systemic review of the literature, Fischer et al. (2014) found that insufficient case-mix corrections and an inability to distinguish planned and unplanned readmissions can inaccurately reflect readmissions related to inpatient hospital care and therefore negatively impact reimbursement. In a similar thread, Thompson, Kaplan, Cao, Bazzoli, and Waters (2016) examined the reliability of risk-standardized readmission rates (RSRRs) used in the HRRP program and found that approximately 25% of payments and/or penalties were associated with unreliable RSRRs.

Furthermore, it has been argued that the selection of 30 days is an arbitrary selection and does not accurately reflect hospital care. McIlvennan et al. (2015) stated that readmissions shortly after the index admission are reflective of care provided and proper transitional care. However, readmissions closer to 30 days can reflect the severity of a patient's condition or events outside of the hospital setting. Chin, Bang, Manickam, and Romano (2016) agreed with this proposition, finding that hospital-level effect (or hospital quality signal) was highest within the first seven days after discharge and then rapidly decreased in the following days. The authors argue that this reflects the impact that household and community factors have on readmission rates.

Summary and Conclusions

Several themes have consistently been found in the literature review regarding HCAHPS and readmissions. First, the intricate nature of patient perception and satisfaction can affect empirical evidence due to the multifactorial makeup of a patient's perspective and experience. Second, the patient-provider relationship and the impact that effective communication has on patient satisfaction with health care is imperative. Third, effective communication can influence readmissions within 30 days of initial visit. Finally, in order to maximize reimbursement for hospitals to continue to provide quality care to diverse populations it is important to reduce readmission rates and improve HCAHPS survey results.

Scientific data has demonstrated the association between communication, discharge readiness, overall rating of the hospital, and readmission rates. However, to the extent of this literature review, evidence was lacking regarding the specific relationship between these independent variables and readmission rates. As previously stated, these variables were chosen systematically due to the influence of each variable regarding readmissions. Furthermore, there was no information available specifically in the chosen regional area this study will provide. The majority of research is either nationwide or select states across the nation in an attempt to include a diverse sample.

A gap in the literature, however, reveals several concerns. First, research has been primarily based on individual institutions or purposefully geographically segregated populations. My study seeks to identify a specific region of the United States in an attempt to discover regional differences in HCAPHS scores and readmissions. Second,

my study is seeking to examine the relationships of five specific independent variables highlighting the importance of communication and discharge readiness to the quality indicator of readmission. Finally, my study focused on two states in the South Atlantic region, which for my study, no literature was found.

In the chapter three, the study methodology will be discussed including research design, population sampling, and data collection.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to examine the relationship between four composite scores and one global item from the HCAHPS survey and the quality indicator of 30-day ACHR rates at acute care hospitals in two South Atlantic states while controlling for staffed beds, total expense, payroll expense, admissions, hospital ownership, and teaching status. Each identified composite score and global item of HCAHPS was examined in relationship to 30-day ACHR rates. HCAHPS data and 30-day ACHR rates provided by CMS and Hospital Compare were utilized to perform statistical analyses. By providing information on the relationship between the identified items of the HCAHPS and 30-day ACHR rates, this study may contribute to the development and implementation of health policy on a state and federal level.

In Chapter 3, I explain the research design and rationale, including the variables used, population studied, sampling procedures, and power analysis. Next, the data collection method is discussed, followed by the operationalization of variables, data analysis plan, and research question and hypothesis. Finally, threats to validity are detailed, and ethical concerns are discussed.

Research Design and Rationale

Variables

The continuous DV for this study was the 30-day ACHR rate. There were five IVs: nurse communication, physician communication, discharge information, care transition, and overall rating of hospital. According to Otani et al. (2019), hospital-level

characteristics are also influential in assessing patient responses and perception of care. The authors used hospital-level characteristics in determining the influence in the overall rating of the hospital, however, my study built on these results by adding hospital-level characteristics as covariates to determine their impact on patient perception of care. The hospital-level characteristics that were used were number of staffed beds, total expense, payroll expense, number of admissions, number of personnel, hospital ownership, and teaching status. These data are provided by the AHA.

Research Design

My study utilized a quantitative design with a correlational, cross-sectional approach. Researchers using quantitative designs seek to examine the relationship between variables by implementing statistical analysis. A correlational study does not relate causal inferences, but rather uses inferential statistics to describe the relationship between the independent variable(s) and dependent variable(s) (Rudestam & Newton, 2015). Additionally, a cross-sectional design is frequently used with analysis of data such as surveys and represents the variables at one point in time (O'Sullivan, Rassel, Berner, & Taliaferro, 2017).

For my study, the research question was the following: Do patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two South Atlantic states when controlling for number of staffed beds, total expense, personnel expense, overall admissions, hospital ownership, and teaching

status? Hospital Compare, a website operated by CMS, archives data regarding both patient perception of care, as evidenced by HCAHPS survey results, and data regarding overall 30-day ACHR rates.

Time and Resource Constraints

These data are available to the public and do not pose a limitation or potential barrier to gathering data. Additionally, archived data are stored on the Hospital Compare website and therefore do not pose a time constraint.

Relationship to Previous Design Choices

Previous literature has utilized multiple regression analysis in determining the relationship between patient perception of care and quality indicators in acute care health care organizations. Yang et al. (2018) used multivariate regression analysis when analyzing the relationship between staff responsiveness, measured by HCAHPS survey results on physician and nurse communication, and hospital readmission rates. A separate linear regression was performed for each independent variable. Additionally, Salinas (2017) used a Pearson regression analysis when analyzing the relationship between the dependent variable of 30-day readmission rates and the independent variable of "Would you recommend this hospital to your friends and family" as the quality indicator. In a related study, Kemp, McCormack, Chan, Santana, and Quan (2015) used overall rating of hospital as an independent variable when studying the relationship between individual questions/domains of HCAHPS.

Methodology

Population

The target population for my study was acute care hospitals in two South Atlantic states participating in the HCAHPS survey. This population did not include hospitals deemed critical access and hospitals operated by the Veterans Administration. These facilities were not included in the study due to potential population differences and variation between the different types of facilities. While there are several specific requirements by The Joint Commission and CMS regarding critical access hospitals, in general, they must have 25 beds or less, be located more than a 35-mile drive from any other hospital, and be located in a rural area (Joint Commission, 2018). Veterans Administration hospitals were not included because they do not complete the HCAHPS survey. The target population consisted of 138 acute care hospitals in the two South Atlantic states.

Sampling and Sampling Procedures

The unit of analysis for my study was defined as acute care hospitals in two South Atlantic states as listed by the Hospital Compare website. Purposive sampling was used for the sample. Purposive sampling is a type of nonprobability sampling that is most often used based on researchers' assessment of the population and what the sample needs to reflect (O'Sullivan et al., 2017). For my study, the specific population of the state and the data reported for the state were analyzed. The sampling frame included all hospitals that report all DV and IVs. Facilities lacking data were excluded.

Power analysis. There are three main factors when conducting a power analysis: alpha level, effect size, and power level. Recommendations are currently of the widely accepted standard of $\alpha = .05$ and medium effect size (O'Sullivan et al., 2017; Warner, 2013). In selecting an alpha of .05, the researcher accepts that there is a 5% chance of committing a Type I error. A Type I error occurs when the data support that the research hypothesis is true, when in fact it is not (O'Sullivan et al., 2017).

Effect size is a numerical index that references the strength of the association between two variables, or how large the statistical difference is (Warner, 2013). Pearson's r correlation supplies an explanation as to the strength of the relationship between two quantitative variables and as such is an appropriate statistical analysis for this study. A medium effect size for this statistic is .30 ($r^2 = .09$), which will be used in determining the sample size for this study.

Tabachnick and Fidell (2013) stated that when using medium effect size, the simple formula of $N > 50 + 8k$ (k represents the number of predictor variables) represents the minimally acceptable value for N (or size of sample). When testing for the significance of individual predictors, the minimally acceptable value for sample size is $N > 104 + k$. The authors suggest using the larger sample size between these two equations.

For my study, with $\alpha = .05$, medium effect size $r = .30$, and statistical power (1-B) $= .80$, the suggested sample size was 84 using the commonly developed tool by G*Power (UCLA Institute for Digital Research & Education, 2019). When using the equation referenced above for five predictor variables and medium effect size, the sample size is greater than 90 ($> 50 + 8*5$). When testing for the significance of individual predictors,

the minimally acceptable value is 109 (> 104 + 5). While there are differing

recommendations for sample size, with a sample size of 175 acute care hospitals for this

study, a minimally accepted value satisfied the power analysis requirement.

Data Collection

All data for the DV and IVs are publicly posted on the Hospital Compare website

(www.data.medicare.gov) operated by CMS. Because these data are available to the

public, it is not necessary to ask permission from Hospital Compare or CMS to access

and use data.. Both current and archived data on the DV, rate of readmission after

discharge from hospital (hospital wide), are located on the CMS website

(www.data.medicare.gov) and can be accessed by the public.

The five IVs, nurse communication, physician communication, care transition,

discharge information, and overall rating of hospital, are also located on the CMS website

(www.data.medicare.gov). The most current data are posted on the website; however,

completed archived data can also be found there. My study used archived data from

2015-2018.

The covariates of number of staffed beds, total expense, payroll expense, number

of admissions, number of personnel, hospital ownership, and teaching status are available

through the AHA. Typically, the AHA requires membership to their association for the

most recent data. However, or the purposes of my study, the AHA Guide from 2016 was

used. Because this guide was an older version, it was made available to the public.

Hospital Compare, published by CMS, is considered the main source for these

data and is used by hospitals nationwide as a standard database. It was therefore a

reputable source of information for this study. For a more detailed description of the data and how they were used by CMS, see Appendix C.

Operationalization of Constructs

Instruments

The HCAHPS survey was the instrument from which the IVs were collected. This survey was originally created in 2002 in partnership with the Agency for Healthcare Research and Quality in an attempt to form a national, standardized method for evaluation of the patient experience in health care organizations. Using extensive psychometric analysis, scientific literature review, and consumer focus groups, the HCAHPS survey is now used nationally as a tool for evaluating patient perception of care and is thereby associated with reimbursement to acute care hospitals (CMS, 2017).

The 30-day ACHR rate was developed in connection with the Yale New Haven Health Services Corporation/Center for Outcomes Research and Evaluation. This rate is claims based and risk adjusted. Hierarchical logistics regression models were used to create a standardized index score for national comparison among acute care healthcare organizations (Yale New Haven Health Services Corporation/Center for Outcomes Research & Evaluation, 2012).

Variables

30-day all cause hospital-wide readmission rate (ACHR). The DV is continuous and used as a measure of quality (Yang et al., 2018). Data are presented as a ratio, or standardized readmission ratio (SRR), which denotes the numerator as the number of "predicted" readmissions and the denominator as the number of "expected

readmissions." Each hospital is viewed in terms of service and case mix to allow for equal comparisons. When comparing ratios, a lower value is indicative of a lower than expected readmission rate (i.e., better quality). A higher ratio indicates poor quality and demonstrates a higher than expected readmission rate (Yale New Haven Health Services Corporation, 2017).

Nurse communication, physician communication. Both nurse communication and physician communication are composite items on the HCAHPS survey and are reported as percentages on the Hospital Compare website. These percentages report the number of "top-box" responses (i.e., "Always") in regard to all responses. Both Hachem et al. (2014) and Yang et al. (2018) used nurse and physician communication when examining the relationship between readmissions and patient perception of care.

Discharge information and care transition. Discharge information is a composite item composed of two questions regarding patients' experience in receiving written information about what to do during their recovery at home (yes-or-no answers) and whether they understood their care when they left the hospital (answered as *agree*, *strongly agree*, *disagree*, or *strongly disagree*). Results are reported as percentages and have been used by Mitchell (2015); Kemp et al. (2017); and Schmocker et al. (2015).

Overall rating of hospital. The overall rating of a hospital is a global item reported by Hospital Compare as a percentage of patients rating the hospital 9 or 10 on a scale of 1 (lowest) to 10 (highest). Kemp et al. (2017) and Boulding et al. (2011) used this global item as an independent variable when examining the relationship between the domains of staff-based questions on HCAHPS with physical features and care processes.

Data Analysis Plan

SPSS v25 was used for data analysis. Data from the Hospital Compare website were checked for completeness and then transferred to SPSS. Hospitals missing data were not included in the study.

Research Question and Hypothesis

The research question for the study was the following: Do patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two South Atlantic states when controlling for number of staffed beds, total expense, personnel expense, overall admissions, hospital ownership, and teaching status?

H_{o1}:   Patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, do not significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two south Atlantic states when controlling for number of staffed beds, total expense, personnel expense, overall admissions, hospital ownership, and teaching status.

H_{a1}:   Patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, do significantly contribute to the percent change of

R^2 variance in hospital readmission rates at acute care health organizations

in two South Atlantic states when controlling for number of staffed beds,

total expense, personnel expense, overall admissions, hospital ownership,

and teaching status.

The statistical tests for the hypotheses are Pearson correlation and multiple regression analyses. The relationship between the DV and IVs was analyzed both individually and combined using Pearson correlation. Multiple regression is used to both predict values for the DV as well as examine how much variation in the DV is explained by the IV. Covariates or confounding variables were also used to account for variance. Results were interpreted using Pearson correlation coefficient, proportion of variance, and statistical significance (Laerd Statistics, 2015).

Threats to Validity

Rudestam and Newton (2015) stated that both external and internal validity must be addressed when performing data analysis. External validity refers to the ability of the results to be generalized to a larger population. In my study, the data collected were from two states in the South Atlantic region and may not be generalized to other states due to different demographics and variability in health care across the nation.

Internal validity describes the ability to make causal references regarding the relationship between the variables. Due to the nonexperimental design of the study, internal validity is low. Furthermore, the purpose of the study was to examine the relationship between patient perception of care and 30-day ACHR, not to infer causality between the variables.

In regard to construct validity, a potential threat is the accuracy of HCAHPS survey results reflecting quality care. As the HCAHPS survey is a tool for measuring patient perception, it is difficult to objectively assess whether patient perception in fact aligns with quality outcomes (Warner, 2013).

Ethical Procedures

With the use of secondary, archival data, there were no restrictions to accessing the data. Data were publicly posted and available for download to the public. No human participants were actively needed, therefore there were no ethical concerns on this issue. Data available were aggregate, in that HCAHPS surveys are reported in percentage form without using patient information in the final report. The data collected were within the state of the researcher's residence and employment, however, the data were not analyzed separately and were coded so as not to reveal the name of each hospital. Additionally, the Walden University Institutional Review Board (IRB) approved my study, ensuring the ethical handling of data [04-21-20-0668273].

Summary

My study implemented a quantitative, correlational, cross-sectional design with secondary data to evaluate the relationship between patient perception of care as demonstrated by HCAHPS survey results and the quality indicator of 30-day ACHR rates in two South Atlantic states. A multiple regression analysis predicts the value of a variable based on two or more other variables (Laerd Statistics, 2015). Data collection involved purposive sampling on all acute care hospitals in two South Atlantic states. Those hospitals with complete data on the DV (ACHR) and the IVs of provider

communication, discharge readiness, and overall rating of the hospital from HCAHPS

surveys were included.

Chapter 4 of this study includes data collection and analysis. Data from publicly

reported databases for ACHR and HCAHPS scores were statistically analyzed in

reference to the research question and were reviewed for accuracy and pertinence.

Chapter 4: Results

Introduction

The purpose of my quantitative analysis was to examine the relationship between patient perception of care as measured by HCAHPS survey results and 30-day ACHR rates at acute care hospitals in two South Atlantic states. The research question for the study was the following: Do patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two South Atlantic states when controlling for number of staffed beds, total expense, payroll expense, number of admissions, number of personnel, hospital ownership, and teaching status?

The hypotheses for my study were as follows:

H_{o1}: Patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, do not significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two South Atlantic states when controlling for number of staffed beds, total expense, payroll expense, number of admissions, number of personnel, hospital ownership, and teaching status.

H_{a1}: Patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, do significantly contribute to the percent change of

R^2 variance in hospital readmission rates at acute care health organizations

in two south Atlantic states when controlling for number of staffed beds,

total expense, payroll expense, number of admissions, number of

personnel, hospital ownership, and teaching status.

This chapter describes data collection methods and presents study results,

including univariate descriptive statistics, statistical assumption testing, and final

statistical analyses.

Data Collection

For data collection, two main sources were utilized. The IVs related to HCAHPS

scores were located in a publicly available dataset on the Hospital Compare website.

These scores were collected during the 2019 VBP fiscal year (October 1, 2018—

September 30, 2019; CMS, 2020a). Additionally, the DV of ACHR rates was collected

via Hospital Compare website and reflect rates from July 1, 2015—June 30, 2018 (CMS,

2020b). Finally, the covariates of staffed beds, total expense, payroll expense, number of

admissions, number of personnel, hospital ownership, and teaching status were found in

the AHA Guide (2016).

While the data collection process was congruent with the methods outlined in

Chapter 3, there were discrepancies in the sample population. For study inclusion, all

domain scores for the IVs as well as the DV needed to be reported. Likewise, in regard to

the covariates, all information needed to be available in the AHA (2016) dataset.

Originally, the sample contained 172 acute care hospitals in two South Atlantic states. In

the sample, there were 25 critical care access hospitals and six VA hospitals, which were

excluded from the final sample. Historically, VA hospitals have not participated in

HCAHPS, as their funding is received from an alternate federal government program

rather than CMS Title XVIII programs (CMS, 2016b). Critical access hospitals were

excluded as previously mentioned in Chapter 1 due to sample characteristics.

Additionally, their funding is earmarked by federal programs to assist in maintaining

rural, community hospitals to provide equal access to healthcare and may reflect

disproportionate mean values compared to small hospitals without critical access program

designation (Rural Health Information Hub, 2019). Additionally, 54 of the remaining

hospitals were excluded due to missing study data. The remaining study sample was ($n =$

92) acute care hospitals.

Descriptive Statistics

First, the DV and IVs were analyzed using univariate measurements to assess

central tendency for continuous variables (Table 1). When evaluating for normal

distribution of the IVs, the mean, standard deviation, skewness, and kurtosis were

analyzed, and all aspects met normal distribution assumptions.

Table 1

Descriptive Statistics of Predictor Variables

	M	*SD*	Min	Max	Skew	Kurtosis
30-day ACHR rates	14.95	.753	12.6	16.6	-.294	.403
RN communication	80.29	3.374	66.67	88.67	-.566	1.772
MD communication	82.17	2.856	75.19	89.57	-.277	-.212
Care transition	52.83	5.071	42.13	65.54	.171	-.484
Discharge information	87.71	2.214	81.64	93.03	-.167	.175
Overall rating of hospital	72.22	7.099	46.18	89.34	-.431	1.018

Covariates

The covariates staffed beds, total expense, payroll expense, number of admissions, number of personnel, hospital ownership, and teaching status were accessed in the AHA Guide (2016) and used the same criteria for hospital selection. Hospital ownership was dummy coded into nominal categories of (a) for-profit, (b) nonprofit, and (c) government. Teaching status was binarily dummy coded, classified into (a) teaching and (b) nonteaching. The frequency distribution is found in Table 2.

Table 2

Descriptive Statistics of Hospital Ownership and Teaching Status

		Frequency	Percentage	Cumulative percent
For-profit		15	16.3	16.3
Nonprofit		55	59.8	76.1
Government		22	23.9	100
	Total	92	100	
Teaching		31	33.7	33.7
Nonteaching		61	66.3	100
	Total	92	100	

The remaining covariates had several issues regarding normal distribution. First, in regard to staffed beds, total expense, payroll expense, number of admissions, and number of personnel, large data ranges were found. For example, staffed beds values ranged from 16 to 1,007. This range contributed to the second problem of increased skew (from 2.062 to 2.512) and kurtosis (from 3.817 to 7.247) assumption violations for total expense, payroll expense, and personnel. While staffed beds and admissions remained within normal data distribution, these data were recoded into staffed beds using three equal cut points to eliminate the influence of outliers, thus allowing for a more equal

hospital comparison (Table 3). Furthermore, when examining the covariates, the same outlier influences are present in total expense, payroll expense, number of admissions, and number of personnel. For example, a hospital with more staffed beds would logically have increased expenses, payroll expenses, admissions, and personnel, with the converse also being true. Furthermore, these data illustrated significant multicollinearity (r = .892 - .983). Based on these analyses and further consideration of their potentially spurious influences in the regression modeling, all were removed with the exception of the recoded hospital size distribution.

Table 3

Descriptive Statistics of Hospital Size

		Frequency	Percentage	Cumulative percentage
Small		33	35.9	35.9
Medium		29	31.5	67.4
Large		30	32.6	100
	Total	92	100	

Variable Assumptions

In order to perform a multiple regression analysis, there are eight assumptions that must be met: (a) a continuous DV; (b) two or more IVs, either continuous or categorical; (c) independence of observations; (d) a linear relationship between the DV and IVs (collectively and individually); (e) homoscedasticity; (f) no multicollinearity; (g) no significant outliers; and (h) normal distribution of residuals (Laerd Statistics, 2015).

Independent Variables

As previously described, both the DV and the IVs met the assumption of continuous and/or categorical data levels. Within the regression analysis, a Durbin

Watson test of independent observations was conducted with a resulting value of (h =

1.882), and scatterplots confirmed linear relationships between the DV and IV(s),

collectively and individually, as well as homoscedasticity. Finally, no significant outliers

or leverage points were appreciated, and normal distribution of residuals was confirmed

by visual inspection of P-P plots.

In evaluating the assumption of multicollinearity, a correlation matrix for the DV

and IVs was constructed (Table 4). Significant evidence of multicollinearity was evident.

MD communication and readmission score (r = -.197, p = .06) were the only

nonsignificant correlations found. Due to the construct nature of the HCAHPS survey,

these composite scores being significantly correlated is consistent with the literature. In

an attempt to reduce multicollinearity and create composite variables between similar

variables, t tests were performed between RN communication and MD communication (t

= 6.311, df = 91, p < .01) as well as Care Transition and Discharge Info (t = 151.152, df =

91, p < .01). While these variables were correlated, they were determined to be

significantly differentiated, as evidenced by their significant means differences; they

remained as individual IVs in the regression models. Additionally, variance inflation

factor values between these specific IVs were less than 5, indicating a moderate

correlation but not warranting further data transformation (Frost, n.d.).

Table 4

Correlation Coefficients of Predictor Variables

Variables	1	2	3	4	5	6
1. 30-day ACHR rates	1					
2. RN communication	-.264*	1				
3. MD communication	-.197	.639**	1			
4. Care transition	-.349**	.783**	.600**	1		
5. Discharge info	-.215*	.519**	.466**	.467**	1	
6. Overall rating	-.359*	.787**	.612**	.863**	.507**	1

*Correlation significant at the 0.05 level (2-tailed). **Correlation significant at the 0.01 level (2-tailed).

Covariates

Remaining covariates were recoded to meet required regression assumptions. Hospital ownership and teaching status were coded into nominal variables; staffed beds were coded into an ordinal variable labeled Hospital Size. An ANOVA statistic was conducted using these recoded variables to examine for the presence of multicollinearity, and no significant correlations were found, with the exception of for-profit status ($r =$ .209). Reviewing the assumption requirements, a Durbin Watson test of independence of observations was met ($h = 2.001$); scatterplots confirmed linear relationships between the DV and covariates (collectively and independently) as well as homoscedasticity. Finally, no significant outliers or leverage points were evident, and normal distributions of residuals were confirmed by visual inspection of P-P plots.

Statistical Analysis

Multiple regression was used to answer the research question. All predictor variables were entered simultaneously and significantly accounted for 14.2% of the variance in 30-day ACHR rates ($R^2_{change} = .142$, $F_{change} = 2.849$, $p = .02$; Table 5).

However, reviewing the unstandardized *B* values, no variable individually significantly predicts 30-day ACHR rates (Table 6).

Table 5

Multiple Regression for 30-Day ACHR Rates Regressed on Independent Predictors

| Model | | | | | Change statistics | | | | |
	R	R^2	Adjusted R^2	Std error of the estimate	R^2 change	F change	$df1$	$df2$	Sig F change
1	.377[a]	.142	.092	.71835	.142	2.849	5	86	**.020**

Note. Dependent variable: 30-day ACHR rates. Significant findings in bold.
[a] Model 1 predictors = (constant), RN Communication, MD communication, care transition, discharge info, overall rating.

Table 6

Multiple Regression Coefficients for 30-Day ACHR Rates Regressed on Independent Predictors

| Model | Unstandardized | | Standardized | | |
	B	Std. Error	B	t	Sig.
Constant	17.515	3.599		4.867	<.01
RN communication	.023	.041	.104	.571	.569
MD communication	.013	.036	.049	.361	.719
Care transition	-.030	.031	-.201	-.957	.341
Discharge info	-.021	.041	-.063	-.519	.605
Overall rating	-.028	.023	-.266	-1.236	.220

For the next step, a hierarchical multiple regression was conducted with covariates added together in the first model (minus for-profit status), then each predictor variable was added in a stepwise fashion (Table 7). In Model 1, the covariates did not statistically contribute to the variance in the DV ($R^2_{change} = .063$, $F_{change} = 1.469$, $p = .219$). Model 2 introduced the predictor variable of RN communication with a significant change in variance to the DV ($R^2_{change} = .041$, $F_{change} = 3.949$, $p = .05$). When covariates are controlled, 4.1% of the variance in predicting 30-day ACHR rates is attributed to RN

communication. Care transition in Model 4 significantly contributed to the DV at 4.4%

variance (R^2_{change} = .044, F_{change} = 4.392, p = .039). All remaining IVs were not

significant in model testing. Table 8 illustrates ANOVA outputs for HCAHPS scores and

covariates.

Table 7

Multiple Regression for 30-Day ACHR Rates Regressed on Independent Predictors With Covariates

Model	R	R^2	Adjusted R^2	Std error of the estimate	Change statistics				
					R^2 change	F change	$df1$	$df2$	Sig F change
1	.252[a]	.063	.020	.74632	.063	1.469	4	87	.219
2	.323[b]	.104	.052	.73398	.041	3.949	1	86	**.050***
3	.324[c]	.105	.042	.73799	.001	.068	1	85	.796
4	.387[d]	.150	.079	.72369	.044	4.392	1	84	**.039***
5	.400[e]	.160	.079	.72371	.010	.996	1	83	.321
6	.413[f]	.171	.080	.72333	.011	1.088	1	82	.300

Note. Dependent variable: 30-day ACHR rates. Significant findings are in bold.
[a] Model 1 predictors = (constant), hospital size, nonprofit, govt. [b] Model 2 predictors = (constant), hospital size, nonprofit, govt, RN comm, *p* <.05. [c] Model 3 predictors = (constant), hospital size, nonprofit, govt, RN comm, MD comm. [d] Model 4 predictors = (constant), hospital size, nonprofit, govt, RN comm, MD comm, care trans. [e] Model 5 predictors = (constant), hospital size, nonprofit, govt, RN comm, MD comm, care trans, d/c info, *p* <.05. [f] Model 6 predictors = (constant), hospital size, nonprofit, govt, RN comm, MD comm, care trans, d/c info, overall rating.

Table 8

ANOVA for HCAHPS Scores and Covariate Predictors

	Model	Sum of squares	df	Mean square	F	Sig
1	Regression	3.272	4	.818	1.469	.219
	Residual	48.458	87	.557		
	Total	51.730	91			
2	Regression	5.399	5	1.080	2.004	.086
	Residual	46.331	86	.539		
	Total	51.730	91			
3	Regression	5.436	6	.906	1.664	.140
	Residual	46.294	85	.545		
	Total	51.730	91			
4	Regression	7.736	7	1.105	2.110	.051
	Residual	43.994	84	.524		
	Total	51.730	91			
5	Regression	8.258	8	1.032	1.971	.060
	Residual	43.472	83	.524		
	Total	51.730	91			
6	Regression	8.827	9	.981	1.875	.067
	Residual	42.903	82	.523		
	Total	51.730	91			

Research Question and Hypothesis

Results were analyzed in relation to the research question: Do patient perceptions of care, measured separately by nurse and physician communication, discharge care and transition, and 30-day ACHR quality indicator rating scores, significantly contribute to the percent change of R^2 variance in hospital readmission rates at acute care health organizations in two South Atlantic states when controlling for number of staffed beds, total expense, personnel expense, overall admissions, hospital ownership, and teaching status?

In the regression models, only RN communication and care transition were significant predictors out of the five hypothesized IVs. I retained the null hypothesis when reviewing the overall research question. However, due to the significant findings of the two IVs, I conducted post hoc analyses to further assess their predictive relationships.

Post Hoc Analysis

With RN communication and care transition being significant model predictors, I performed an additional regression analysis with RN communication and care transition as the IVs and 30-day ACHR rates as the DV (Table 9). The two predictor variables accounted for a significant proportion of variance in readmission scores at 12.2% (R^2_{change} = .122, p = .003). However, only care transition was significant with every one-point increase in care transition scores predicting a .055 decrease in 30-day ACHR rates (B = -.055, p = .024; Table 10).

Table 9

Multiple Regression for 30-Day ACHR Rates on Care Transition and RN Communication

Model	R	R^2	Adjusted R^2	Std error of the estimate	Change statistics				
					R^2 change	F change	$df1$	$df2$	Sig F change
1	.349[a]	.122	.102	.71432	.122	6.190	2	89	**.003**

Note. Dependent variable: 30-day ACHR rates. Significant findings in bold.
[a] Model 1 predictors = (constant), care transition, RN communication.

Table 10

Multiple Regression Coefficients for 30-Day ACHR Rates Regressed on Care Transition and RN Communication

Model	Unstandardized		Standardized		
	B	Std. Error	B	t	Sig.
Constant	17.414	2.039		8.542	.000
RN communication	.005	.036	.024	.149	.882
Care transition	-.055	.024	-.368	-2.304	**.024**

Note. Significant findings in bold.

Care Transition and RN Communication

I then further analyzed the care transitions predictor variable due to its model-presented impact on readmission scores. Being that nurse communication has been found as an important factor in patient perception and care, this concept was evaluated as a single IV with care transition repositioned to the DV. A one-way ANOVA was utilized to examine for correlation between IVs and covariates due to the differing data levels of the variables. For-profit status was dropped as a covariate due to the significant correlation ($df = 91$, $F = 5.468$, $p = .022$).

A hierarchical regression analysis was implemented with care transition as the DV and RN communication as the predictor variable and the retained covariates (Table 11). In Model 1, the covariates did not significantly contribute to the variance in care transition. However, in Model 2, RN communication accounted for 55.6% of the variance in care transition, when controlling for the covariates ($R^2_{change} = .556$, $F_{change} = 130.559$, $p < .01$). For every one-point increase in RN communication, there is a 1.203-point increase in care transition ($B = 1.203$, $t = 11.426$, $p < .01$; Table 12). Also, while the

combination of covariates did not significantly contribute to the variance, non-profit

status was significant (B = 3.145, t = 2.159, p = .034).

Table 11

Multiple Regression for Care Transition Regressed on RN Communication and Covariate Predictors

Model					Change statistics				
	R	R^2	Adjusted R^2	Std error of the estimate	R^2 change	F change	$df1$	$df2$	Sig F change
1	.280[a]	.078	.036	4.97829	.078	1.851	4	87	.126
2	.796[b]	.634	.613	3.15538	.556	130.559	1	86	**.000***

Note. Dependent variable: Care transition. Significant findings are in bold.
[a] Model 1 predictors = (constant), nonprofit, govt, teaching status, hospital size. [b] Model 2 predictors = (constant), nonprofit, govt, teaching status, hospital size, RN comm.

Table 12

Multiple Regression Coefficients for Care Transition Regressed on RN Communication and Covariate Predictors

Model		Unstandardized		Standardized		
		B	Std. Error	B	t	Sig.
1	(Constant)	51.699	2.453		21.072	
	NonProfit	3.145	1.456	.306	2.159	**.034***
	Govt	3.051	1.674	.258	1.822	.072
	Teaching Status	-1.693	1.273	-.159	-1.329	.187
	Hospital Size	-.182	.730	-.030	-.249	.804
2	(Constant)	-44.286	8.543		-5.184	
	NonProfit	-.078	.965	-.008	-.081	.936
	Govt	-.912	1.116	-.077	-.817	.416
	Teaching Status	-.582	.813	-.055	-.715	.476
	Hospital Size	.615	.468	.101	1.315	.192
	RN communication	1.203	.105	.800	11.426	**.000***

Note. Dependent variable: Care transition. Significant findings are in bold.
[a] Model 1 predictors = (constant), nonprofit, govt, teaching status, hospital size. [b] Model 2 predictors = (constant), nonprofit, govt, teaching status, hospital size, RN comm.

Hospital size. Literature is consistent with identifying cultural and structural

differences with hospital size (Al-Amin & Makarem, 2016; Johnston et al., 2015) and

therefore could be considered a factor in RN communication and care transition scores.

Added to the fact this covariate was retained to represent the range of size in the sample,

further testing was warranted (Table 13). In Model 1, hospital size was not a significant

contributor to the variance of care transition. In Model 2, RN communication

demonstrated a significant change in the proportion of variance in care transition when

controlling for hospital size at 62.5% ($R^2_{change} = .625$, $p < .01$). For every one-point

increase in RN communication score, there is a resulting 1.193 increase in care transition

score ($B = 1.193$, $t = 12.210$, $p < .01$; Table 14).

Table 13

Multiple Regression for Care Transition Regressed on RN Communication and Hospital Size

| Model | R | R^2 | Adjusted R^2 | Std error of the estimate | Change statistics | | | | |
					R^2 change	F change	$df1$	$df2$	Sig F change
1	.045ᵃ	.002	-.009	5.09352	.002	.181	1	90	.672
2	.792ᵇ	.627	.619	3.13159	.625	149.095	1	89	**.000**

Note. Dependent variable: Care transition. Significant findings in bold.
[a] Model 1 predictors = (constant), hospital size. [b] Model 2 predictors = (constant), hospital size, RN communication.

Table 14

Multiple Regression Coefficients for Care Transition Regressed on RN Communication and Hospital Size

| Model | | Unstandardized | | Standardized | | |
		B	Std. error	B	t	Sig.
1	(Constant)	52.291	1.371		38.153	.000
	Hospital size	.273	.642	.045	.425	.672
2	(Constant)	-44.416	7.965		-5.577	.000
	Hospital size	.730	.397	.120	1.840	.069
	RN communication	1.193	.098	.794	12.210	**.000**

Note. Dependent variable: Care transition. Significant findings in bold.
[a] Model 1 predictors = (constant), hospital size. [b] Model 2 predictors = (constant), hospital size, RN communication.

The finding of RN communication accounting for such a large proportion of variance in regard to care transition warranted further analysis of the impact of RN communication in 30-day ACHR rates (Table 15). Hospital size was not a significant predictor of RN communication (R^2_{change} = .009, p = .371). However, when controlling for hospital size, RN communication became a significant predictor of 30-day ACHR rates, accounting for 7.3% of variance. Every one-point increase in RN communication score resulted in a .061 decrease in 30-day ACHR rates (R^2_{change} = .073, F_{change} = 7.04, B = -.061, p = .009; Table 16).

Table 15

Multiple Regression for 30-Day ACHR Rates Regressed on RN Communication and Hospital Size

Model	R	R^2	Adjusted R^2	Std error of the estimate	Change statistics				
					R^2 change	F change	df1	df2	Sig F change
1	.053[a]	.003	-.008	.75706	.003	.257	1	90	.613
2	.276[b]	.076	.055	.73287	.073	7.040	1	89	**.009**

Note. Dependent variable: 30-day ACHR rates. Significant findings in bold.
[a] Model 1 predictors = (constant), hospital size. [b] Model 2 predictors = (constant), hospital size, RN communication.

Table 16

Multiple Regression Coefficients for 30-day ACHR rates Regressed on RN Communication and Hospital Size

Model		Unstandardized		Standardized		
		B	Std. Error	B	t	Sig.
1	(Constant)	15.046	.204		73.862	.000
	Hospital size	-.048	.095	-.053	-.507	.613
2	(Constant)	19.964	1.864		10.711	.000
	Hospital size	-.072	.093	-.079	-.772	.442
	RN communication	-.061	.023	-.272	-2.653	**.009**

Note. Dependent variable: 30-day ACHR rates. Significant findings in bold.
[a] Model 1 predictors = (constant), hospital size. [b] Model 2 predictors = (constant), hospital size, RN communication.

MD Communication

While RN communication has been consistently identified as an important factor in HCAHPS scores, MD communication also impacts patient perception and quality outcomes and warranted further analysis. First, a correlation analysis demonstrated significant collinearity between RN and MD communication ($r = .639$, $p < .01$; Table 4) illustrating that patients might not effectively distinguish between differences in these two forms of caregiver communication roles, impacting the overall HCAHPS score.

Next, I examined the impact of MD communication in presence of RN communication on 30-day ACHR rates. MD communication and RN communication significantly contribute to the variance in 30-day ACHR rates at 7.1% ($R^2_{change} = .071$, $F_{change} = 3.407$, $p = .038$). However, when controlling for RN communication, MD communication was not a significant contributor to the variance in 30-day ACHR rates ($R^2_{change} = .001$, $F_{change} = .131$, $p = .718$; Table 17).

Table 17

Multiple Regression for 30-Day ACHR Rates Regressed on RN Communication and MD Communication

Model					Change statistics				
	R	R^2	Adjusted R^2	Std error of the estimate	R^2 change	F change	$df1$	$df2$	Sig F change
1	.264[a]	.070	.059	.73122	.070	6.749	1	90	**.011**
2	.267[b]	.071	.050	.73478	.001	.131	1	89	.718

Note. Dependent variable: 30-day ACHR rates. Significant findings in bold.
[a] Model 1 predictors = (constant), RN communication. [b] Model 2 predictors = (constant), RN communication, MD communication.

Revisiting the predictor variables of RN communication and care transition scores, I then performed a regression with the three IVs. As previously demonstrated, RN communication accounted for 61.3% in the variance of care transition scores and when controlling for RN communication, MD communication also significantly accounted for 1.7% of the variance in care transition (Table 18). Every one-point increase in MD communication score resulted in a .299 increase in care transition scores ($R^2_{change} = .017$, $F_{change} = 4.043$, $B = .299$, $p = .047$; Table 19).

Table 18

Multiple Regression for Care Transition Regressed on RN Communication and MD Communication

Model					Change statistics				
	R	R^2	Adjusted R^2	Std error of the estimate	R^2 change	F change	$df1$	$df2$	Sig F change
1	.783[a]	.613	.608	3.17281	.613	142.413	1	90	**.000**
2	.793[b]	.630	.621	3.12050	.017	4.043	1	89	**.047**

Note. Dependent variable: Care transition. Significant findings in bold.
[a] Model 1 predictors = (constant), RN communication. [b] Model 2 predictors = (constant), RN communication, MD communication.

Table 19

Multiple Regression Coefficients for RN Communication on MD Communication

Model		Unstandardized		Standardized		
		B	Std. error	B	t	Sig.
1	(Constant)	-41.619	7.921		-5.254	.000
	RN communication	1.176	.099	.783	11.934	**.000**
2	(Constant)	-53.225	9.696		-5.489	.000
	RN communication	1.015	.126	.675	8.053	**.000**
	MD communication	.299	.149	.169	2.011	**.047**

Note. Dependent variable: Care transition. Significant findings in bold.
[a] Model 1 predictors = (constant), RN communication. [b] Model 2 predictors = (constant), RN communication, MD communication.

Finally, I examined the relationship of MD communication on 30-day ACHR rates, controlling for hospital size. MD communication accounted for a significant portion of the variance in 30-day ACHR rates at 4.4% (R^2_{change} = .044, F_{change} = 4.103, p = .046; Table 20). For every one-point increase in MD communication score, there was a -.056 decrease in the 30-day ACHR rates (B = -.056, t = -2.026, p = .046; Table 21).

Table 20

Multiple Regression for 30-Day ACHR Rates Regressed on MD Communication and Hospital Size

Model	R	R^2	Adjusted R^2	Std error of the estimate	Change statistics				
					R^2 change	F change	df1	df2	Sig F change
1	.053	.003	-.008	.75706	.003	.257	1	90	.613
2	.216	.047	.025	.74434	.044	4.103	1	89	**.046**

Note. Dependent variable: 30-day ACHR rates. Significant findings in bold.
[a] Model 1 predictors = (constant), hospital size. [b] Model 2 predictors = (constant), hospital size, MD communication.

Table 21

Multiple Regression Coefficients for 30-Day ACHR Rates Regressed on RN Communication, MD Communication and Hospital Size

Model		Unstandardized		Standardized		
		B	Std. error	B	*t*	Sig.
1	(Constant)	15.046	.204		73.862	.000
	Hospital size	-.048	.095	-.053	-.507	.613
2	(Constant)	19.731	2.321		8.500	.000
	Hospital size	-.082	.095	-.090	-.860	.392
	MD communication	-.056	.028	-.213	-2.026	**.046**

Note. Dependent variable: 30-day ACHR rates. Significant findings in bold.
[a] Model 1 predictors = (constant), hospital size. [b] Model 2 predictors = (constant), hospital size, RN communication.

Summary of Findings

My study explored the relationship between patient perception of care as measured by HCAHPS scores and 30-day ACHR rates, while controlling for number of staffed beds, total expense, personnel expense, overall admissions, hospital ownership, and teaching status, in acute care hospitals in two South Atlantic states. The predictor variables of RN communication, MD communication, care transition, discharge information, and overall rating of hospital were found to significantly contribute to the variance of readmission scores at 14.2%. However, analyzed separately, each predictor was not a significant contributor. When controlling for covariates, RN communication and care transition accounted for 4.1% and 4.4% of the variance, respectively. Therefore, I was not able to reject the null hypothesis.

In order to further inspect those significant IVs individually in a regression model, I conducted post hoc analyses. In regard to 30-day ACHR rates, RN communication and

MD communication accounted for 7.3% and 4.4%, respectively, of the variance in 30-day ACHR rates when controlling for hospital size. However, when controlling for RN communication, MD communication was not a significant predictor of 30-day ACHR rates.

RN communication and care transition accounted for 12.2% of the variance in 30-day ACHR rates, but only care transition was found to be significant by itself. When controlling for RN communication, care transition accounted for 1.7% of the variance in 30-day ACHR rates. When controlling for covariates, RN communication accounted for 55.6% of the variance with non-profit status being a significant factor contributing to the variance in care transition. Furthermore, when controlling for hospital size, RN communication accounted for 62.5% of the variance in care transition.

Chapter 5 will include my interpretation of the findings, limitations of the study, recommendations for future research, and implications of my study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of my study was to examine the relationship between patient perception of care as measured by HCAHPS survey results and 30-day ACHR rates at acute care hospitals in two South Atlantic states in the United States. My study used publicly available datasets from CMS from 2015-2018 for the HCAHPS scores and readmission rates for acute care hospitals in the specified region. Additionally, AHA data (2016) were used for the covariate data.

Using SPSS v.25, I conducted a multiple regression analysis with a stepwise approach. The IVs consisted of the HCAHPS scores of RN communication, MD communication, care transition, discharge information, and overall rating of the hospital. In regard to the covariates, total expense, payroll expense, number of admissions, and number of personnel were removed in favor of leaving number of staffed beds (hospital size) as the covariate to represent the range of hospitals in the sample. For-profit status was also excluded due to multicollinearity.

To summarize key findings, RN communication and care transitions accounted for 4.1% and 4.4%, respectively, of readmission scores, when controlling for covariates. Additionally, RN communication and MD communication accounted for 7.3% and 4.4% variance of readmission rates, respectively, when controlling for hospital size. MD communication was not a significant predictor of readmission scores when controlling for RN communication.

Care transition was also found to be a significant predictor of readmission scores. When controlling for RN communication, care transition scores accounted for 1.7% of the variance in readmission rates. However, when combined with RN communication, 12.2% of the variance could be attributed to the two predictors, with only care transition being significant by itself and RN communication accounting for 62.5% of the variance in care transition.

Interpretation of the Findings

With the addition of HCAHPS scores being tied to financial reimbursement, hospital administrators are expected to invest resources in specific arenas to ensure that these scores are as high as possible to maximize reimbursements and avoid penalties. RN communication and care transition have been identified as significant predictors in reducing readmission scores.

Building on previous research, my study also identified the importance of provider communication in patient perception and improving quality outcomes (Institute for Healthcare Communication, 2011; Kahn et al., 2015). My study also demonstrated that RN communication was a significant predictor of overall HCAHPS scores as well as readmission rates, with an increase in RN communication score predicting a decrease in readmission rates. Additionally, although MD communication was a significant predictor when combined with RN communication, it was not a significant predictor of readmission rates on its own.

The finding that provider communication can have a significant impact on readmission rates is in contrast to previous research that found no statistical relationship

between patient perception of care (Sacks et al., 2015), more specifically nurse and physician communication and readmission rates (Yang et al., 2018). Of interest, however, is the fact that MD communication and RN communication were only significant together in predicting readmission rates. This finding will be explored as a recommendation for future research.

A unique finding of my study is the significance of care transition scores in predicting readmission rates. Being that this composite score is a relatively new aspect of HCAHPS, this finding demonstrates the importance of patient perception in the discharge process. Care transition encompasses patients' understanding at discharge of their current condition, help that is needed and available, and patients' responsibility in managing their care outside of the hospital (CMS, 2017a). Furthermore, RN communication is a significant factor in care transition scores, thereby reinforcing the importance of RN communication in patient perception when it comes to the transition process with the ultimate goal of avoiding readmission.

Relevance to Social Construction Theory

SCT has been adapted for policy design by Schneider and Ingram (1993). This theory describes the social construction of target populations that typically divides these populations into "good" and "bad." Those populations deemed "good" predominantly receive benefits, while those labeled "bad" incur penalties. In health care, acute care hospitals that achieve targeted thresholds for HCAHPS scores receive the benefits of increased reimbursement while those that do not achieve these thresholds suffer the penalties of reduced funds. Moreover, Schneider and Ingram stated that policy design can

further engrain policy within socially constructed populations that preserve power dynamics and promote institutional cultures.

To my knowledge, my study is the first to apply SCT to policy regarding HCAHPS scores and patient perception. One of the key outcomes of SCT is the establishment and reinforcement of policy in light of the social construction of target populations. HCAHPS scores reflecting patient perception have the potential to increase or decrease the social construction of the hospital, especially when these data are publicly available for consumers. The quality outcome of readmission rate acts in the same fashion.

The findings of my study suggest that as patient perception of RN communication and care transition services improves, the quality outcome of readmission rates decreases. If the purpose of policy is to change behavior to achieve policy goals, this finding reflects the potential of policy to improve patient outcomes. For example, as protocols and policies within an acute care hospital emphasize the importance of patient perception in providing care, the goal of quality outcomes also becomes an achievable goal. This increase in quality outcomes is publicly available for consumers and communities to view and therefore forms a positive social construction of the healthcare system. Likewise, if patient perception decreases (lower HCAHPS scores), then the quality outcome of readmission rate decreases, and the social construction of this target population is considered negative.

Limitations of the Study

Potential for Bias

One limitation of my study was the potential for bias in completing the HCAHPS survey. Previous research has established the reality of nonresponse bias, selection bias, and effects of extended time in responding to surveys as potential factors in evaluating the accuracy of survey results (Compton, Glass, & Fowler, 2019; Hendra & Hill, 2019). The HCAHPS survey is not immune to this phenomenon. Additionally, while the survey is intended for the patient, other members of a patient's household may fill out the survey (i.e., an adult child might fill out the survey for an ill mother or father). This introduction of additional perspectives has the ability to influence HCAHPS scores, in that results may not reflect patients' perceptions. Furthermore, while the survey was created with an awareness of survey mode effects, patient mix, and nonresponse bias (Elliott, et al., 2009) and algorithms are maintained to avoid such bias in the survey, there is the potential with the progression of technology and the evolution of healthcare that bias may creep into survey results without consistently reanalysis of the methodology behind HCAHPS scores.

Multicollinearity

Another limitation to my study was the high multicollinearity of the variables. The multicollinearity of the predictor variables suggests that HCAHPS questions are not as distinctive as originally planned and do not accurately measure patient perception in acute care hospitals. For example, the finding that RN communication and MD communication are highly correlated highlights an important distinction that patients

might be unable to differentiate concerning communication styles and purposes. Essentially, while the question is intended to highlight a difference in communication, patients are not making the same distinction, which may influence the overall results of the survey.

Generalizability

Yet another limitation to the study is the inability to generalize. While the purpose of the study was to focus on two South Atlantic states, it did not allow for generalizability of the results nationwide due to the specific region where data were collected. Additionally, with a small sample size ($N = 92$), it would be inaccurate to generalize these findings with a broader scope. In actuality, both the DV and IVs of my study do not account for institutional culture and structure, community factors, or regional influences that can impact patient perception (Al Amin & Makarem, 2016; Campione et al., 2017; Chin et al., 2016; Feemster & Au, 2014; Jha et al., 2008; Johnston et al., 2015; McIlvennan et al., 2015; Otani et al., 2019; Stefan et al., 2012).

Recommendations for Further Research

The Impact of Care Transition on Multiple Disciplines

Nurse communication has been identified as an important factor in patient perception and decreasing readmission scores (Hachem et al., 2014; Kol et al., 2018). With the addition of care transition scores significantly decreasing readmission scores, hospital administrators have more data to support not only nurse communication, but also the importance of patient transition at discharge. The composite score of care transition focuses on how patients perceive hospital staff's attempts to prepare patients for

discharge with a focus on preferences for healthcare needs, understanding of individual responsibility regarding health management at discharge, and understanding of the purpose of medication prescribed at discharge (Health Services Advisory Group, 2017).

In regard to the composite score of care transition, multiple disciplines are involved, including case managers, social workers, dieticians, and pharmacists. Further research should be directed at the relationships of these disciplines and their impact in not only care transition, but also decreasing readmission scores.

Provider Communication

Nurse and physician communication influence multiple aspects of the patient experience in acute care hospitals. My study demonstrated the importance of these communication styles in both care transition and readmission scores; however, there is more to be clarified regarding the relationship of nurse and physician communication.

The high collinearity revealed in my study highlights the importance of further research that clearly defines the roles and communication purposes of nurses and physicians. If patients are unable to distinguish these two roles and the significance of each role, HCAHPS scores can lose impact and become inaccurate measurements of patient perception in regard to reimbursement. The importance of provider communication has been demonstrated in previous research (Institute for Healthcare Communication, 2011); however, if these communication styles have the ability to impact reimbursement, more research needs to be invested in how these roles impact patient perception.

Hospital Consumer Assessment of Healthcare Providers and Systems Revisions

As previously mentioned, the composite scores of nurse and physician communication demonstrated high multicollinearity, suggesting that patient perception of these roles and communication styles might be blurred. This was also seen between the variables of care transition, discharge information, and overall rating of the hospital. The makeup of the HCHAPS survey needs to be analyzed to ensure that the questions presented are accurately assessing the domains of the healthcare system for which they are intended. While extensive scientific analysis went into the creation of HCAHPS, due to recent empirical evidence (Crow et al., 2002; Keller et al., 2005; Westbrook et al., 2014) and the findings of my study, the construct validity of HCAHPS is uncertain. When survey results have the ability to impact hospital reimbursement, it is imperative that the assessment tool used accurately represents patient perception.

Sources of Variance

As previously mentioned, several authors have found and inferred the multilayered influence of community and social factors that can impact readmission rates (Al Amin & Makarem, 2016; Campione et al., 2017; Chin et al., 2016; Feemster & Au, 2014; Jha et al., 2008; Johnston et al., 2015; McIlvennan et al., 2015; Otani et al., 2019; Stefan et al., 2012). My study found a proportion of variance in readmission rates being attributed to RN communication, MD communication, and care transition; however, there remains the question of the source of the additional variance. The findings of this study add to this discussion by identifying the potential of external or internal factors impacting readmission variance.

Implications of the Study

Social Change

One of the main goals of acute care hospitals is to provide high-quality care for patients. Not only is it imperative for healthcare systems to guarantee quality indicators are met; due to reimbursement requirements, it is also important to ensure positive patient perception of the care provided. The results of my study showcase the importance of provider communication and effective care transitions in reducing readmission rates.

In regard to social change, my study demonstrates the areas in healthcare in which hospital administrators can focus resources to reduce readmission rates and increase patient satisfaction. A key factor that affects healthcare systems is the allotment of resources to maximize efficiency in providing quality care. With this knowledge, administrators can determine health policy at an institutional level as well as contribute to the discussion in amending national policy in regard to patient perception and the impact on quality indicators.

Recommendations for Practice

Provider communication. My study echoes previous findings that nurse communication is an integral part of the discharge process. With nurse communication accounting for 4.1% of readmission scores when controlling for covariates and up to 7.3% of the variance when controlling for only hospital size, the importance of nurse communication is confirmed. With MD communication also contributing 4.4% variance when controlling for hospital size, the necessity of MD communication is also outlined.

In order to ensure effective communication, nursing administrators must invest resources in the training and implementation of programs and policies designed to maximize communication and ensure strategies of increasing positive patient perception in an effort to decrease readmission rates. Patients must understand their clinical course in the hospital and the necessary medical components of their health at discharge so that their transition out of the acute care environment is as successful as possible.

Furthermore, as previously discussed, it is imperative that CMS and other regulatory agencies better define operational constructs within HCAHPS, specifically communication. Better definitions afford patients the opportunity to accurately evaluate their experience in acute care hospitals. Additionally, the results from the survey would achieve greater construct validity to impact reimbursement or penalties for acute care hospitals.

Care transition. One of the key findings of my study is the significance of care transition scores in decreasing readmission rates. This finding provides empirical data on the importance of aiming resources geared at transitioning the patient at discharge to the appropriate level of care. While care transition only significantly accounted for 1.7% of the variance of readmission scores, this finding can have tremendous impact overall. When the overall reimbursement of HCAHPS scores can extend to 3% of total reimbursement, every potential improvement area that hospital administrators can identify can have a positive financial impact.

While nurse communication did account for 55.6% to 62.5% of the variance in care transition scores, when controlling for covariates, the regression analyses allowed

for the following question to be asked: What other potential confounders add to the variance? Efforts should be made by hospital administrators to form a more cohesive approach to transitioning patients at discharge. As previously mentioned, pharmacy teams are already being investigated for their impact on readmission rates. Additionally, resources should be aimed at disciplines involved in discharge and transitions—case managers, social workers, dieticians, physical therapists, and so forth. It is not only the responsibility of the nurse and physician to ensure that patients are prepared for discharge. A multidisciplinary approach is crucial to ensure that patients have all resources prior to transition and that their knowledge of their condition is adequate so that their perception of care remains positive and their risk for readmission is reduced.

Conclusion

An emphasis on quality care and positive patient perception has become an integral component of healthcare systems. The creation of HCAHPS to allow for a standardized method of assessment of patient perception has become crucial to reimbursement for acute care hospitals. Hospital administrators are consistently tasked with allocating resources, both financial and human, to targeted areas in an effort to maintain high-quality patient outcomes and ensure that the patient experience is satisfactory.

The reduction of readmission rates is imperative for patients to maintain positive health status in the community. Provider communication and preparation for transition out of the hospital are critical aspects of the patient experience in the discharge process. Currently, there is no measure available to account for external factors such as home

environment, social demographics, and community characteristics, which can play a part in a patient's unplanned readmission. For this reason, healthcare systems must focus efforts and resources on the impactful areas of the patient's hospital stay. By focusing on increasing patient satisfaction and positive perceptions, especially in terms of provider communication and care transition, hospital staff can impact overall readmission rates at acute care hospitals. Increasing patient satisfaction and perception scores on HCAHPS can then increase CMS reimbursement. In a similar fashion, decreasing readmission rates saves money for hospitals. The importance of maximizing funding at a time when health care costs are exponentially expanding is critical for the national healthcare system to ensure positive patient outcomes and experiences.

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Appendix A: Hospital Consumer Assessment of Healthcare Providers and Systems

Survey

HCAHPS Survey

SURVEY INSTRUCTIONS

♦ You should only fill out this survey if you were the patient during the hospital stay named in the cover letter. Do not fill out this survey if you were not the patient.

♦ Answer <u>all</u> the questions by checking the box to the left of your answer.

♦ You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

☐   Yes
☑   No   ➔ *If No, Go to Question 1*

You may notice a number on the survey. This number is used to let us know if you returned your survey so we don't have to send you reminders.
Please note: Questions 1-22 in this survey are part of a national initiative to measure the quality of care in hospitals. OMB #0938-0981 (Expires November 30, 2021)

Please answer the questions in this survey about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

YOUR CARE FROM NURSES

1. **During this hospital stay, how often did nurses treat you with <u>courtesy and respect</u>?**

   1☐ Never
   2☐ Sometimes
   3☐ Usually
   4☐ Always

2. **During this hospital stay, how often did nurses <u>listen carefully to you</u>?**

   1☐ Never
   2☐ Sometimes
   3☐ Usually
   4☐ Always

3. **During this hospital stay, how often did nurses <u>explain things</u> in a way you could understand?**

   1☐ Never
   2☐ Sometimes
   3☐ Usually
   4☐ Always

4. **During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?**

   1☐ Never
   2☐ Sometimes
   3☐ Usually
   4☐ Always
   9☐ I never pressed the call button

YOUR CARE FROM DOCTORS

5. During this hospital stay, how often did doctors treat you with <u>courtesy and respect</u>?

   ¹☐ Never
   ²☐ Sometimes
   ³☐ Usually
   ⁴☐ Always

6. During this hospital stay, how often did doctors <u>listen carefully to you</u>?

   ¹☐ Never
   ²☐ Sometimes
   ³☐ Usually
   ⁴☐ Always

7. During this hospital stay, how often did doctors <u>explain things</u> in a way you could understand?

   ¹☐ Never
   ²☐ Sometimes
   ³☐ Usually
   ⁴☐ Always

THE HOSPITAL ENVIRONMENT

8. During this hospital stay, how often were your room and bathroom kept clean?

   ¹☐ Never
   ²☐ Sometimes
   ³☐ Usually
   ⁴☐ Always

9. During this hospital stay, how often was the area around your room quiet at night?

   ¹☐ Never
   ²☐ Sometimes
   ³☐ Usually
   ⁴☐ Always

YOUR EXPERIENCES IN THIS HOSPITAL

10. During this hospital stay, did you need help from nurses or other hospital staff in getting to the bathroom or in using a bedpan?

    ¹☐ Yes
    ²☐ No ➔ If No, Go to Question 12

11. How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?

    ¹☐ Never
    ²☐ Sometimes
    ³☐ Usually
    ⁴☐ Always

12. During this hospital stay, were you given any medicine that you had not taken before?

    ¹☐ Yes
    ²☐ No ➔ If No, Go to Question 15

13. Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?

    ¹☐ Never
    ²☐ Sometimes
    ³☐ Usually
    ⁴☐ Always

14. Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?

    ¹☐ Never
    ²☐ Sometimes
    ³☐ Usually
    ⁴☐ Always

WHEN YOU LEFT THE HOSPITAL

15. After you left the hospital, did you go directly to your own home, to someone else's home, or to another health facility?

   ¹☐ Own home
   ²☐ Someone else's home
   ³☐ Another health facility ➜ **If Another, Go to Question 18**

16. During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?

   ¹☐ Yes
   ²☐ No

17. During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?

   ¹☐ Yes
   ²☐ No

OVERALL RATING OF HOSPITAL

Please answer the following questions about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

18. Using any number from 0 to 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?

   ⁰☐ 0   Worst hospital possible
   ¹☐ 1
   ²☐ 2
   ³☐ 3
   ⁴☐ 4
   ⁵☐ 5
   ⁶☐ 6
   ⁷☐ 7
   ⁸☐ 8
   ⁹☐ 9
   ¹⁰☐ 10   Best hospital possible

19. Would you recommend this hospital to your friends and family?
   ¹☐ Definitely no
   ²☐ Probably no
   ³☐ Probably yes
   ⁴☐ Definitely yes

UNDERSTANDING YOUR CARE WHEN YOU LEFT THE HOSPITAL

20. During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.

   ¹☐ Strongly disagree
   ²☐ Disagree
   ³☐ Agree
   ⁴☐ Strongly agree

21. When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.
    1☐ Strongly disagree
    2☐ Disagree
    3☐ Agree
    4☐ Strongly agree

22. When I left the hospital, I clearly understood the purpose for taking each of my medications.
    1☐ Strongly disagree
    2☐ Disagree
    3☐ Agree
    4☐ Strongly agree
    5☐ I was not given any medication when I left the hospital

ABOUT YOU

There are only a few remaining items left.

23. During this hospital stay, were you admitted to this hospital through the Emergency Room?
    1☐ Yes
    2☐ No

24. In general, how would you rate your overall health?
    1☐ Excellent
    2☐ Very good
    3☐ Good
    4☐ Fair
    5☐ Poor

25. In general, how would you rate your overall mental or emotional health?
    1☐ Excellent
    2☐ Very good
    3☐ Good
    4☐ Fair
    5☐ Poor

26. What is the highest grade or level of school that you have completed?
    1☐ 8th grade or less
    2☐ Some high school, but did not graduate
    3☐ High school graduate or GED
    4☐ Some college or 2-year degree
    5☐ 4-year college graduate
    6☐ More than 4-year college degree

27. Are you of Spanish, Hispanic or Latino origin or descent?
    1☐ No, not Spanish/Hispanic/Latino
    2☐ Yes, Puerto Rican
    3☐ Yes, Mexican, Mexican American, Chicano
    4☐ Yes, Cuban
    5☐ Yes, other Spanish/Hispanic/Latino

28. What is your race? Please choose one or more.
    1☐ White
    2☐ Black or African American
    3☐ Asian
    4☐ Native Hawaiian or other Pacific Islander
    5☐ American Indian or Alaska Native

29. What language do you <u>mainly</u> speak at home?

- ¹☐ English
- ²☐ Spanish
- ³☐ Chinese
- ⁴☐ Russian
- ⁵☐ Vietnamese
- ⁶☐ Portuguese
- ⁷☐ German
- ⁹☐ Some other language (please print):

_____

[This next question is]/[These next questions are] from [NAME OF HOSPITAL] and [is/are] not part of the official survey.

NOTE: IF HOSPITAL-SPECIFIC SUPPLEMENTAL QUESTION(S) ARE ADDED, THE STATEMENT ABOVE MUST BE PLACED IMMEDIATELY BEFORE THE SUPPLEMENTAL QUESTION(S).

THANK YOU

Please return the completed survey in the postage-paid envelope.

[NAME OF SURVEY VENDOR OR SELF-ADMINISTERING HOSPITAL]

[RETURN ADDRESS OF SURVEY VENDOR OR SELF-ADMINISTERING HOSPITAL]

Appendix B: Copyright Permission Request and Confirmation for Care Transition

Questions of Hospital Consumer Assessment of Healthcare Providers and Systems

Survey

Re: copyright permission

Coleman, Eric ████████████████████████████████
Mon 6/29/2020 5:29 PM
To: Sheri Matson ████████████████████████

Hi Sheri

Thank you for your email.

Permission granted for the activities that you have outlined below.

Good luck with your endeavors

Eric Coleman, MD

From: Sheri Matson ████████████████████████
Date: Monday, June 29, 2020 at 1:56 PM
To: "Eric.Coleman ████████████████████████
Subject: copyright permission

Good afternoon Dr. Coleman,

My name is Sheri Matson (formerly Empeno) and I am a doctoral student at Walden University. I'm in the Public Policy & Administration program, with an emphasis on health policy. My dissertation is on the relationship between HCAHPS and readmissions.

I'm including a copy of the HCAHPS survey in the Appendix. Fortunately, my Form & Style editor pointed out that the care transition questions are copyrighted--I overlooked this when placing it in the appendix.

I'm writing to you to ask permission to use this survey, specifically your questions, in my dissertation for informational purposes only.

If there are any more questions or concerns I'd be happy to address them. Thank you for time.

Sincerely,
Sheri Matson, BSN, MPA, PhD(c)

Appendix C: Example of Hospital Consumer Assessment of Healthcare Providers and

Systems Survey Data Presentation

Floor	Achievement Threshold	Benchmark	Baseline Rate	Performance Rate	Achievement Points	Improvement Points	Dimension Score	HCAHPS Base Score	HCAHPS Consistency Score
28.1	78.69	86.97	81.61	81.8	4 out of 10	0 out of 9	4 out of 10	27	19
Minimum score	50th percentile	Mean of top decile			Comparison in the performance period to the national median in the baseline period	Amount of change from baseline to performance	Used to calculate base score. The larger of the Achievement or Improvement Points is used.	(0-80)	(0-20)

Note: According to CMS (2016, 2017a), the total domain score is the sum of the base score and consistency score. Scores are calculated using data from the baseline and performance period. Each domain score (i.e. communication with nurses, communication with doctors, etc.) provides data to the base score via achievement or improvement points. The consistency score involves an analysis of the base score along with other domains to add further data to the Person and Community Engagement (PCE) domain, which is utilized in totaling the hospital's VBP Total Performance Score (TPS).