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Hospital-based professional spiritual care: evaluating the utilization, availability, and impact of chaplains.

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HOSPITAL-BASED PROFESSIONAL SPIRITUAL CARE: EVALUATING THE UTILIZATION, AVAILABILITY, AND IMPACT OF CHAPLAINS

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DEDICATION

I dedicate this dissertation to my chaplain colleagues who labor tirelessly caring for strangers and friends. I hope this dissertation adds a little more advocacy for the difficult work you do; work that was already very demanding without a pandemic. I also dedicate this to my son, Hayden, who reminds me every day what is important in life.

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ABSTRACT

HOSPITAL-BASED PROFESSIONAL SPIRITUAL CARE: EVALUATING THE UTILIZATION, AVAILABILITY, AND IMPACT OF CHAPLAINS

Kelsey B. White

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BACKGROUND: The Affordable Care Act, enacted in 2010, transformed healthcare policy and forced hospitals to reevaluate traditional methods for care delivery. Researcher advocated for patient-centered models of care to reduce costs, address inequitable access to services, and improve service quality. These models prioritize patient values, preferences, and beliefs inclusive of patients' religious and spiritual needs. Professional chaplains provide religious and spiritual care within many hospital settings. This dissertation explored the characteristics of hospitalized persons using chaplains, the factors associated with a hospital reporting a chaplaincy department, and how those services impacted patient satisfaction.

METHODS: The first analysis used a two-part hurdle model to examine characteristics of those hospitalized at one midwestern hospital from 2012 to 2017. The second analysis employed Resource Dependency Theory and Institutional Theory to analyze the American Hospital Association (AHA) and Area Health Resource File (AHRF) through a

pooled logistic regression model. The final paper used AHA and AHRF data combined with Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) data to identify if a difference in patient satisfaction scores existed between hospitals with and without chaplaincy departments. Contingency Theory guided the final analysis.

FINDINGS: Persons with longer hospitalizations and with poor or fair self-rated health used a chaplain more often and at a higher rate than those with less acute health needs. Larger hospitals, those with increasing percent Medicare days, accredited by the Joint Commission, non-profit, and health system members were more likely to report a chaplaincy department as well as those in more munificent environments. Medium size hospitals had better patient satisfaction and more respondents likely to recommend it when they had a chaplaincy department.

CONCLUSIONS: Hospitalized persons with more acute health needs utilize chaplaincy at a greater rate; hospitals with the institutional framework and more munificent environments provide these services. Medium sized hospitals have higher patient satisfaction rates, a metric influential in reimbursement. Although the presence of these services has increased over the past ten years, no standardization of service provision exists. The ability for some hospitals to provide chaplaincy, a service that could impact reimbursement, warrants further standardization by administrators and healthcare policymakers.

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INTRODUCTION

The shifting paradigm for healthcare delivery in the United States gained momentum with the adoption of the Patient Protection and Affordable Care Act in 2010. The work of researchers to challenge how policymakers regulated healthcare emphasized the need to increase equitable access to services, decrease healthcare costs, and improve the quality of care delivered (Berwick, Nolan, Whittington, 2008; Whittington, Nolan, Lewis, & Torres, 2015). Improvements within healthcare delivery required expanding the availability of services, reorganizing the traditional fee-for-service payment models, and challenging points of delivery to improve the content of their service interactions (Whittington et al., 2015). The ultimate hope with the legislative action was to improve inequitable health outcomes that had many populations within the U.S. dying too young or dealing with unnecessary disease burden (Berwick et al., 2008; Institute of Medicine, 2003). The adopted changes prioritized patient needs which meant embracing a patient-centered approach that would attend to the priorities, values, and beliefs of those seeking care rather than the priorities of the care provider (Institute of Medicine, 2001).

Patient-centered Healthcare

Patient-centered care models emphasize the patient's role in medical decision making and honor patient preferences within care delivery (Institute of Medicine, 2001). When patients are more actively engaged in their health, they play a more active role within their healthcare encounters and ultimately experience better health outcomes. The manner in which care providers understand and respect patients' values and preferences,

deliver coordinated and integrated care, as well as provide emotional support that mitigates anxiety and fear, determines the embodiment of patient-centered care (Institute of Medicine, 2001). Core to the provision of this patient-centered care is an embracing of a wholistic model of health and individual identity. Expanded research around the social determinants of health and how psycho-social and economic factors influence health outcomes has strengthened these patient-centered approaches.

Public health scholars consider religion and spirituality (R/S) an important social determinant of health (Idler, 2014), but the delivery of medical care often omits the discussion of patients' religious and spiritual identities. *Religion* refers to "a system of beliefs and practices observed by a community, supported by rituals that acknowledge, worship, communicate with, or approach the Sacred, the Divine, God, or Ultimate Truth, Reality or nirvana" (Koenig, 2008, p.11) and *spirituality* refers to "the way individuals seek and express meaning and purpose and the way they experience their connectedness to the moment, to self, to others, to nature, and to the significant or sacred" (Puchalski et al., 2009, p.887). Ideally, patient-centered care models that prioritize patient preferences, values, and needs also intentionally address their R/S needs. Patients see their R/S identity as a core part of their health and well-being (Astrow, Wexler, Texeira, He, & Sulmasy, 2007; McCord et al., 2004) and the vast majority of patients with serious health challenges rely on faith or spirituality to help them cope with their illness (Canada et al., 2013; Isaac, Hay, & Lubetkin, 2016). Researchers suggest that at least half of patients want healthcare professionals to inquire about their R/S concerns (Astrow et al., 2007; Ehman, Ott, Short, Ciampa, & Hansen-Flaschen, 1999).

The Importance of Religion and Spirituality for Health

Addressing an individual's R/S needs can impact the manner in which they adopt healthy behaviors, cope with health challenges, adhere to medical guidance, make medical decisions, and achieve healthy outcomes. The use of social support and respect for the body often mediate the impact of R/S on health (Oman, 2018). For example, sacred beliefs about one's body have been linked to healthier behaviors among college students (Mahoney et al., 2005). R/S coping helps people adjust to stressful life events and often buffer the impact of those experiences (Koenig, Pargament, & Nielsen, 1998; Koenig, King, & Carson, 2012). For instance, the use of positive R/S resources help individuals coping with cancer (Thuné-Boyle, Stygall, Keshtgar, & Newman, 2006). In terms of decision making, one study reported how R/S factors differentiated adolescents' and parents' approach to cystic fibrosis treatments (Grossoehme et al., 2015). Although many mechanisms work between R/S and health outcomes, the research consistently suggests that R/S engagement is associated with a lower risk of death (Chida, Steptoe, & Powell, 2009) and lower rates of heart disease, cancer, pulmonary disease, and dementia (Oman, 2018).

A growing proportion of U.S. adults, 23% in 2014, do not affiliate with a formal religious tradition or attend religious services regularly (Pew Research Center, 2015), but R/S beliefs continue to impact how U.S. adults use healthcare. For instance, 48% of adults believe God determines what happens to them (Fahmy, 2018) and among those not religious, 29% report making decisions with prayer and personal reflection as compared to 22% who use advice from professional experts (Pew Research Center, 2016). Further,

higher levels of spirituality are associated with less medical decisional regret (Rego, Gonçalves, Moutinho, Castro, & Nunes, 2020). Healthcare delivery organizations, however, have yet to identify the best approach to providing spiritual care services.

The attention to spiritual care within hospitals has grown in recent decades. Accreditation by the Joint Commission now requires hospitals to assess patients for spiritual needs (Balboni & Peteet, 2017) and clinical specialties like palliative care consider spiritual care a core domain and have called for greater research (National Consensus Project, 2009). Many of the top universities in the United States have dedicated academic programs to examine the intersection of R/S and health alongside an intentional integration in medical education (Balboni & Peteet, 2017). Researchers also suggest that how engaged a physician is with their own R/S, can influence the openness to patients' R/S narratives (Lawrence & Curlin, 2009). Hospitals have increasingly integrated R/S into Grand Rounds to foster intentional conversations about the interplay between R/S and health in care delivery and often professional spiritual care providers lead or guide these conversations (Balboni & Peteet, 2017).

Hospital Chaplaincy

Professional spiritual care, provided by hospital employed chaplains, can influence the individual and the system in which that chaplain clinician works and the research around their work continues to grow (Fitchett, 2017). In one cross-sectional analysis, researchers reported an association between hospitals with chaplaincy services and lower inpatient death rates and greater hospice enrollment rates (Flannelly et al., 2012). The provision of end-of-life care by community religious leaders (and the absence

of spiritual care provided by the medical team) resulted in 2.6 higher odds of receiving aggressive medical treatment in the last week of life (Balboni et al., 2013). Further, patients and families who received spiritual care from a chaplain reported better hospital experiences than those who did not receive spiritual care (Marin et al., 2015; Johnson et al., 2014). Even though these professionals impact health outcomes, much remains unknown about how U.S. hospitals utilize such expertise.

Hospitals within the United States employ professional chaplains as each deems necessary. Even within palliative care, a discipline that has included professional spiritual care from inception, only 39% of hospital palliative care programs meet national staffing standards for chaplains (Spetz et al., 2016). Some suggest that hospitals lack incentive and face ethical dilemmas when determining how to provide substantive religious or spiritual care due to a lack of reimbursement structure for professional spiritual care (Warnock, 2009). Regardless, the lack of national standards for the provision of spiritual care within hospitals (VanderWeele et al., 2017) can lead to inequitable access to these services. Before researchers make recommendations on such standards, additional information about the utilization, availability, and prevalence of chaplaincy care is needed.

Overview

The three manuscripts within this dissertation address important gaps in our understanding of the provision of professional spiritual care with hospitals as a component of patient-centered care. Together, the papers describe what is known as well as adds to the known data points about the landscape of spiritual care in hospitals. The

first paper begins by describing the characteristics of who receives any spiritual care, the amount of spiritual care individuals may receive, and the demographic characteristics associated with receiving spiritual care. The second paper takes a step backward to identify which hospitals provide spiritual care services. Finally, the third paper aims to examine the impact the provision of these services may have on patient experience.

The first manuscript is the first to apply the Aday and Andersen (1974) framework of access to the study of hospital spiritual care. This paper is also uniquely the first to examine the amount of time a hospitalized person spends with a chaplain as an outcome. Methodologically, the paper employs a hurdle model to handle the two-part distribution of the dependent variable. In the wider study of healthcare access, rarely do researchers consider the utilization of a specific part of the healthcare team. This paper challenges policymakers to extend beyond discussions about access beyond the traditional biomedical model and consider the research about who has access to spiritual care professionals.

The second manuscript examines which hospitals report a chaplaincy department. More specifically, it examines what institutional and environmental factors are associated with a hospital reporting a chaplaincy department between 2010 and 2019. The paper presents the analyses framed by Institutional Theory and Resource Dependency Theory, two theories used to examine hospital service strategies, but never before used to examine the provision of chaplaincy services. Since the services are non-billable, the paper identifies the factors influential in the provision of chaplaincy services and expands consideration of other patient-centered care strategies. Methodologically, the paper

combines data from the American Hospital Association (AHA) Annual Survey and the Area Health Resource File (AHRF) to conduct a pooled logistic regression with clustered standard errors at the hospital level. Uniquely, it considers hospital and county characteristics from the year prior to reporting rather than of the reporting year. The assumption is that the hospital's dynamics and context from the year prior impact the provision of this service more so than what the hospital experiences in the current moment; this is especially true for a non-billable and non-revenue generating service such as chaplaincy.

The final manuscript completes the dissertation by considering the impact of these services on patient experience. The analyses, guided by Contingency Theory, combined hospital-level Hospital Consumer Assessment of Healthcare Providers and Systems Survey (HCAHPS) data publicly reported on Hospital Compare with AHA and AHRF data to over a five-year period. While controlling for organizational and environmental factors associated with higher HCAHPS scores, the analysis examined how the scores differed between hospitals with and without chaplaincy departments. With a pooled linear regression (clustered standard errors), the analyses examined the percent of respondents that reported a 9 or 10 for overall hospital experience and the percent of respondents that would "definitely" recommend the hospital to family or friends. Unlike other papers that have examined the association between hospital chaplaincy departments and patient experience scores, this study examined the association at the hospital level.

Jointly, these manuscripts offer a unified examination of who utilizes hospital chaplains, what hospitals provide these services, and their impact. Together, they develop

a more complete picture of professional chaplaincy. The results of the present research will, ideally, help professional chaplains further advocate for greater clinical integration and challenge health services researchers to consider the clinical professionals, beyond physicians and nurses, who make patient-centered care a reality. In addition, all three papers will expand consideration for how hospital administrators and healthcare policymakers can provide patients with the services they want and standardize the provision of spiritual care in hospitals.

CHAPTER 1: EXAMINING FACTORS ASSOCIATED WITH UTILIZATION OF CHAPLAINS IN THE ACUTE CARE SETTING

OVERVIEW

Hospitalized persons want their spiritual needs addressed and discussed by the healthcare team, but medical providers and nurses lack the necessary training. Patients want chaplaincy care, but very few receive it, and little is known about utilization factors. To identify the population characteristics associated with the utilization of chaplaincy services, hospitalization data from March 2012 to July 2017 were analyzed (N = 15,242 patients). Religiously affiliated individuals and those with the most acute health needs were more likely to receive chaplaincy care and received more total care. Patient-centered healthcare models may need to evaluate strategic integration of spiritual care beyond reactive spiritual care provision.

Keywords: *patient-centered, hurdle models, spiritual care, chaplain*

EXAMINING FACTORS ASSOCIATED WITH UTILIZATION OF CHAPLAINS IN THE ACUTE CARE SETTING

INTRODUCTION

Patient-centered hospital care requires providers to attend to patients' needs, values, and preferences through multidisciplinary efforts that prioritize the whole-person (Aboumatar et al., 2015; Whittington, Nolan, Lewis, & Torres, 2015). Without patient-centered approaches health delivery systems reinforce existing disparities and exacerbate barriers to utilization (Mitchell & Perry, 2020). When patients do not receive adequate time with clinicians during clinical encounters they feel less heard and respected (Mitchell & Perry, 2020) which impacts adherence to preventative measures (Hammond, Matthews, Mohottige, Agyemang, & Corbie-Smith, 2010), psychological well-being, and ultimately health outcomes (Buchmueller & Levy, 2020).

Strong patient-centered care approaches require the integration of multiple disciplines to prevent the exacerbation of such disparities. For example, although patients want their spiritual needs discussed by the healthcare team, providers continue to report inadequate time and training and discomfort in addressing patients' spiritual needs (Best, Butow, & Olver, 2016; Chibnall, Bennett, Videen, Duckro, & Miller, 2004). Emerging models of spiritual care in acute health settings utilize professional chaplains as members of the healthcare team to address the emotional, existential, and religious/spiritual concerns of patients and their loved ones which strengthens patient-centered communication and care (Walter, 1997; Walter, 2002). Chaplains further patient-centered efforts by reducing patients' emotional and existential distress (Berning et al., 2016). In

addition, chaplaincy care improves perceptions of patient-centered care; patients who receive it report better hospital team communication (Williams, Meltzer, Arora, Chung, & Curlin, 2011) and better hospital experiences/satisfaction (Johnson et al., 2014; Marin et al., 2015).

A gap, and potential disparity, exists between who wants or needs chaplaincy care and who receives it. One study (*N*=1,591) suggested that 70% of patients wanted at least one chaplaincy visit during their hospitalization and 38% preferred one at least every few days, however, only 43.5% actually received a visit (Piderman et al., 2010). Other research suggests that as many as 50% of hospitalized persons may want chaplaincy care (Ehman, Ott, Short, Ciampa, & Hansen-Flaschen, 1999), but potentially as few as 10 to 30% actually receive visits (Flannelly, Galek, & Handzo, 2005). Even for palliative care programs, where addressing spiritual needs is a core component of care, only 39% of hospital palliative programs report employing a chaplain (Spetz et al., 2016). Patients want a chaplain to support them through times of anxiety and uncertainty or offer caregiver support (Piderman et al., 2010). In a sample of 8,405 cancer care patients, 65-88% of patients report that "spirituality helps them through their cancer experience" (Canada et al., 2013). For those with mental health challenges, one study reported (*N*=406) that nearly 80% of individuals identified religious/spiritual beliefs as important sources of support (Tepper, Rogers, Coleman, & Malony, 2001). Unaddressed religious/spiritual struggles can ultimately compromise health and well-being (Fitchett et al., 2004). Although the research has identified this disparity between the desire for spiritual care and receiving any, the factors associated with receiving chaplaincy care are

poorly understood. Thus, this study seeks to find out what population characteristics are associated with utilization of chaplaincy care.

CONCEPTUAL FRAMEWORK

Aday and Andersen (1974) describe utilization of health services as a product of both individual and system-level factors. According to their model, utilization includes the type, purpose, site, or time interval of an encounter. How individuals gain entry to the health system (such as an emergency department admission) as well as the specific health policy context impact how and why they utilize various services (Aday & Andersen, 1974). To explore who utilizes chaplaincy care, this research adapted the model to Population characteristics include predisposing, enabling, and need based factors that influence use of healthcare services. *Predisposing factors* describe the propensity of individuals to use healthcare services, such as demographic traits. *Enabling factors* contribute to individuals' means to use a service, such as education or insurance coverage. *Need factors* include the perceived and evaluated health states that contribute to service utilization (Aday & Andersen, 1974). To explore who utilizes chaplaincy care, this research adapted the model to investigate this question (Figure 1).

Predisposing Factors

Previous research has examined the relationships between predisposing factors and religious involvement. For example, older age was associated with more frequent religious service attendance (Pew Research Center, 2015; Voas & Chaves, 2016) and women were more likely to request a hospital chaplain (Piderman et al., 2010). There is strong evidence of higher levels of religious involvement among African Americans compared to Whites (Ellison, Hummer, Burdette, & Benjamins, 2010). The use of a

chaplain for non-Hispanic populations and those who do not speak English as their primary language may depend on hospital translational services since research has identified mixed findings (Damen et al., 2020; Hyer et al., 2020). In addition, religious patients are more likely to self-refer to chaplaincy services (Fitchett, Meyer, & Burton, 2000), and their religious affiliation may be associated with greater utilization of spiritual care. Thus, we hypothesized the following:

H1a. Older age will have a positive association with receipt of chaplaincy care and duration of care.

H1b. Women will be more likely to receive chaplaincy care and receive longer visits.

H1c. Non-white individuals will be more likely to receive chaplaincy care and receive longer visits.

H1d. No association will exist between ethnicity and receipt of chaplaincy care and duration of care.

H1e. No association will exist between primary language and receipt of chaplaincy care and duration of care

H1f. Those who report a religious affiliation will be more likely to receive chaplaincy care and receive longer visits.

Enabling Factors

In terms of the enabling variable education, previous research has demonstrated a less consistent association with religiosity. In one study of U.S. adults, education level either minimized or amplified an individual's religious involvement based on one's denominational affiliation (McFarland, Wright, & Weakliem, 2011) as well as gender

(Norton & Tomal, 2009). Another study reported an inconsistent association between receipt of chaplaincy care and education (Damen et al., 2020). Thus, we hypothesized the following:

H2. Education will have no association with receipt or the duration of chaplaincy care.

Need Factors

Chaplains play an important role for those with advanced illness or death (Handzo et al., 2008; Massey et al., 2015). Chaplains guide families through advanced care planning and end-of-life care (Massey et al., 2015). Further, research reported associations between length of stay and increased chaplaincy care (Fitchett et al., 2000). Thus, we hypothesized the following:

H3a. Individuals with fair/poor self-reported health status will be more likely to receive chaplaincy care and have longer duration visits.

H3b. Individuals reporting fair/poor self-reported mental health will be more likely to receive chaplaincy care and have longer duration visits.

H3c. Individuals with longer hospitalizations will be more likely to receive chaplaincy care and have longer duration visits.

METHODS

Data Sources and Subjects

The present study is a retrospective cross-sectional and tertiary data analysis. Data was exported from Rush University Medical Center (RUMC) data warehouse in September 2017. The dataset combined deidentified electronic medical record (EMR) information with patient Hospital Consumer Assessment of Healthcare Providers and

Systems (HCAHPS) responses (see Appendix 1 for data sources). The data consolidation was approved by the Chicago Area Institutional Review Board (IRB) and the RUMC IRB. Further, the IRB at University of Louisville approved this analysis which was conducted in Stata SE 16. Observations represent hospitalizations for those persons who returned satisfaction surveys at RUMC from March 2012 to July 2017. If multiple hospitalizations for an individual occurred during the period, the first hospitalization was retained. Thus, each observation represents one hospitalized individual.

Dependent Variable

Spiritual care within the hospital is provided by staff chaplains as well as students from the accredited CPE program. Chaplains are assigned to clinical areas for a large proportion of spiritual care. The hospital's spiritual care department requires that all chaplains, whether staff or student, document their care in the electronic medical record (EMR) and that includes their total time spent. Chaplains who visit a particular patient document their time post-visit within the EMR.

The conceptual model identifies the dependent variable as the amount of spiritual care provided by a chaplain during a hospitalization. Amount refers to the total time (minutes) spent with a chaplain over the course of one hospitalization. Over 70% of the hospitalized persons had no recorded chaplaincy care. Thus, non-parametric methods were explored for the analysis.

Predisposing Independent Variables

Age, sex, race, ethnicity, language, and religious affiliation were the predisposing variables examined. The distribution of age was normal and thus it remained a continuous variable. Sex was reported as male or female.

Hospitalized persons reported their race as American Indian/Alaskan Native, Asian, Black/African American, Native Hawaiian/Other Pacific Islander, Other, White, or Unknown. Race was recoded as White or non-White. Ethnicity was reported as Non-Hispanic or Latino, Hispanic/Latino, Cuban, Mexican/Mexican American, Puerto Rican, did not specify, or other. Recoding changed ethnicity to Non-Hispanic or Hispanic. Hospitalized persons reported speaking 28 different languages and it was recoded into English or Other.

Religious affiliation was recoded based on the Pew Research Center's American Religious Landscape Survey (Pew Research Center, 2015). The original data had 42 different categories. Since the analysis wanted to identify the difference in referrals for those religiously affiliated compared to those not, recoding consisted of three categories: Religiously Affiliated (including Christian traditions, Buddhists, Hindus, Jews, Muslims, etc.), None, and Not Specified/Unknown. The Pew Research Center reports that a growing proportion of individuals in the U.S. do not identify with a formal religious tradition ("None"), but continue to identify as spiritual, believe in a divine god, and/or practice specific rituals. Thus, None and the Unspecified/Unknown were maintained as separate categories.

Enabling Independent Variable

Hospitalized persons reported their education as less than or equivalent to 8th grade education, some high school, high school graduate, some college, college graduate, or more than 4 years of college. Education was recoded into less than college or some college or more.

Need Independent Variables

The dataset contained four need independent variables: self-reported health, self-reported mental health, length of stay, and primary diagnosis. Need variables are reports of health status as either perceived by the individual or evaluated by a healthcare provider (Andersen, 1995). Self-reports of health are perceived health needs. Hospitalized persons self-reported their health and self-reported mental health as excellent, very good, good, fair, or poor. Previous research suggested dichotomizing the variable for consideration in utilization data (Raina, Torrance-Rynard, Wong, & Woodward, 2002).

Due to the highly skewed nature of length of stay (days), it was recoded as an ordinal variable: 1 day, 2 days, 3 days, 4 days, 5-9 days, and greater than 9 days. Many studies have reported on the arbitrary categorization of length of stay and no best practice has been identified (Clark, Ostrander, & Cushing, 2016; Clark & Ryan, 2002).

Primary diagnosis was reported in Diagnostic Related Groups (DRGs) and then further recoded into Center for Medicare and Medicaid Services' (CMS) Major Diagnostic Categories (MDC). Since hospitalization frequencies within most of the original MDC categories remained small, the analysis focused on the three MDCs with the highest frequency occurrences (Diseases of the Musculoskeletal System and Connective Tissues, Diseases and Disorders of the Circulatory System, and Diseases and Disorders of the Nervous System) and combined the remaining MDCs.

Control Variables

Aday and Andersen (1974) suggest that how an individual enters a health system impacts utilization. Thus, the analysis controlled for whether the hospitalization occurred as a result of an emergency department (ED) admission.

Acute health conditions and hospitalizations can vary by season (Butala, Secemsky, Wasfy, Kennedy, & Yeh, 2018) and healthcare policies can change from one year to the next. Analysis explored the best approach to control for when the hospitalization occurred and separate categorical variables for the quarter and year were most appropriate.

Analysis

Raw data included 15,350 observations (hospitalized persons). Data cleaning and examination resulted in removal of missing observations for the total time with a chaplain (n = 15) and two cases where data entry errors were obvious (i.e., one case had 83 chaplain visits in 3 days totaling 2900 minutes and the other had 41 visits in 6 days totaling 1025 minutes). Further, 91 additional observations from March to June of 2012 were removed due to issues encountered in the data merging process. In all, 108 observations were removed prior to analysis and the final sample included 15,242 hospitalized persons.

The dependent variable, total minutes with a chaplain, included 73% zeros which limited the applicability of traditional parametric regression approaches. Minutes occur in counts and thus warrant the appropriate count model. Hurdle models relax the assumption that the same data generation applies to zero and nonzero outcomes and hence allows modeling to consider counts that may result from two different processes of data-generation processes (Cameron & Trivedi, 2010). The first part of a mixture model considers a dichotomous outcome and the second part examines the entries with dependent variable values greater than zero (Mullahy, 1986; Rose, Martin, Wannemuehler, & Plikaytis, 2006). Since the receipt of chaplaincy care and the duration

of the visit could occur from different clinical dynamics, a hurdle model allows for examination of both outcomes at the same time. The results of the first part of the model are presented as an odds ratio (e.g., the odds of receiving a chaplaincy visit for females compared to males) and the results of the second part of the model are presented as an incident rate ratio. In this study, the incident rate ratio (IRR) reports the amount of time with a chaplain for one group compared to another (e.g., the amount of time with a chaplain for females compared to males). Descriptive statistics were tabulated for the dichotomous outcome (no chaplain care versus any) as well as the count model (total minutes of chaplain care). Bivariate associations were calculated for proportions within the dichotomous outcome and either the Wilcoxon Rank Sum or Kruskal Wallis Median Tests for the independent variables for the total minutes with a chaplain.

Identifying the most appropriate logistic regression model included examining interactions, the Hosmer-Lemeshow goodness-of-fit, variance inflation factors for multicollinearity, and classification rates. The interaction between length of stay, ED admission, and primary diagnosis were included due to their theoretical relationship. In other words, ED admission implies higher illness acuity and thus a longer hospitalization. Also, the diagnosis and evaluated need could impact how long one is hospitalized. For the zero-truncated negative binomial (ZTNB) model, the lowest Akaike Information Criteria (AIC) and Bayesian Information Criteria (BIC) guided best fit alongside the log likelihood (Cameron & Trevidi, 2010). Both models included adjustments for the possibility of heteroskedasticity in the error term.

Hurdle models present results of the analysis in two parts – first the dichotomous outcome and second the count outcome. Although the results appear functionally and

analytically independent, the interpretation must consider the connection of observations from one part to the next since the second part of the analysis (Model 2) represents a sample (which is present in the first model) that has overcome a "hurdle."

RESULTS

The study examined the records from 15,242 hospitalizations (persons; Table 1); those hospitalized were on average 59.7 (Standard Deviations (*sd)* = 15.5) years old and 58.2% were female. The majority hospitalized identified as White (75.6%), non-Hispanic (89.8%), and spoke English (91.5%). Among those categorized as religiously affiliated, 41.4% were Protestant, 49.3% Catholic, and 9.3% of other religious traditions; 21.9% of the sample reported no religious affiliation. Approximately 29% reported high school education or less. Less than half reported excellent, very good, or good health (43.4%) and 65.4% reported excellent, very good, or good mental health. The evaluated health needs showed that 55.7% stayed 3 days or more and 37.4% were hospitalized for diseases of the musculoskeletal system and connective tissue. A minority of hospitalizations occurred as a product of an ED admission (28.3%).

The missing independent variable data ranged from 0.1% (ethnicity/language) to 5.1% (education). Further, 3.9% of respondents did not respond to questions about their self-reported health and 3.5% did not respond to questions about self-reported mental health.

Table 1 reports the descriptive statistics and bivariate analyses for part 1 of the model and Table 2 reports the descriptive statistics and bivariate analyses for part 2 of the model. Table 3 reports the multivariate results for the dichotomous outcome in part 1 (Model 1) and part 2 (Model 2) which are the associations for the total time. The

multivariate analyses together, in addition to bivariate analysis, identify what factors are associated with chaplaincy utilization. Table 4 summarizes the trends through the analysis.

Predisposing Hypotheses (1a to 1f.) Six predisposing variables were examined with regards to chaplaincy utilization. Only religious affiliation maintained statistical significance in both bivariate and multivariate analyses. Individuals using chaplaincy services were older on average than those not utilizing the service, but the rate of utilization did not depend on age. Within the multivariate modeling (Table 3), the direction change of the association between age and the outcomes suggested a complex dynamic when moving from use to a rate of chaplaincy use. Although females appear to have 1.18 times higher odds (95% CI, 1.08 - 1.30) of receipt of chaplaincy care, the amount of care did not differ for males. Race and ethnicity were only associated in bivariate comparisons. Language lacked any association throughout analysis.

Enabling Hypothesis (2). The study only considered one enabling variable. Education was associated with utilization in both bivariate analyses but not the multivariate models.

Need Hypotheses (3a – 3c). Analysis examined four need variables: self-reported health, self-reported mental health, length of stay, and MDC (diagnosis). Three of the four remained statistically significant in both bivariate and multivariate analyses; one of these was a perceived need variable and two were evaluated need variables.

Analysis of self-reported health, a perceived need variable consistently associated, showed that those with poor or fair health were more likely to use any and to use chaplaincy at a greater rate. Those with poor or fair self-reported mental health were only

at a higher odd of use compared to those with excellent, very good, or good mental health.

The evaluated need variables, length of stay and MDC, had statistically significant associations throughout analyses. The greater the length of stay, the higher the odds of receiving a chaplain visit and the greater volume of care received. The interactions between diagnosis (MDC) and ED Admission with length of stay (continuous) were statistically significant which suggests that receipt of chaplaincy care and amount may depend on acuity, diagnosis, and duration of hospitalization.

DISCUSSION

Patient-centered care includes attending to hospitalized persons' beliefs, values, and spiritual needs. Although literature identified a gap between the number of hospitalized persons who want spiritual care and those who receive it, very little is known about the factors associated with the receipt or volume of spiritual care. The current healthcare workforce has limited time and training to provide the spiritual support desired by patients (Best et al., 2016; Chibnall et al., 2004). Guided by the Aday and Andersen (1974) access framework, this study explored the utilization of chaplaincy care in one acute care hospital. Analysis of over 15,000 hospitalizations revealed a complex relationship between predisposing characteristics and a consistent relationship with need (health) variables.

Only religious affiliation remained a consistent predisposing predictor of chaplaincy utilization. The greater likelihood of receiving chaplaincy care and greater chaplaincy utilization rate for those affiliated with a religious tradition may relate to patterns in staff referrals and assumptions about chaplaincy care. Healthcare clinicians

consider chaplains consultants or specialists who respond upon request (Thiel & Robinson, 1997). One study identified an association between staff referrals for chaplain care and the religious/spiritual identity of the health professional (Galek, Flannelly, Koenig, & Fogg, 2007). Physicians, too, may make chaplaincy referrals based on a narrow and religiously-based understanding of chaplains' skills and the scope of chaplaincy (Gomez, Nuñez, White, Browning, & DeLisser, 2020). Such assumptions may limit the receipt of care for those religiously unaffiliated or without a documented affiliation. The problem with this approach to spiritual care is that often those who want or even need the support do not receive it. In 2014 approximately 23% of U.S. adults reported being religiously unaffiliated and that proportion has rapidly increased from 16% in 2007 (Pew Research Center, 2015). Further, 72% of those who identified as unaffiliated reported believing in God, a higher power, or spiritual force (Fahmy, 2018); 48% of U.S. adults believe God determines the course of their life events (Fahmy, 2018). In the face of health crises, religion and spirituality help many individuals cope (Canada et al., 2013; Koenig, 2015). However, the present study suggests those religiously affiliated are primarily receiving such support. When spiritual needs go unaddressed, existing health conditions could be exacerbated by spiritual distress (VanderWeele, Balboni, & Koh, 2017) and ultimately impact health outcomes. This discrepancy suggests that hospitals need to consider systematic screening for spiritual needs rather than referring for chaplaincy care based on assumptions or records of patients' religious affiliation (Glenister & Prewer, 2017; Hyer et al., 2020; King et al., 2017).

The associations between chaplaincy care and acute health needs have been described, in part, in other literature. Researchers identified an interplay between illness

severity and receipt of chaplaincy care by documenting that chaplains may visit patients based on their medical status (Handzo et al., 2008) or advanced disease state (Hyer et al., 2020). Patients frequently receive spiritual care when facing end-of-life needs (Massey et al., 2015) and more frequently see a chaplain when they near death or are discharged to hospice (Labuschagne et al., 2020). Interprofessional collaboration has acknowledged the increasing importance of chaplains in goals-of-care and decision-making conversations (Ernecoff, Curlin, Buddadhumaruk, & White, 2015; Wirpsa et al., 2019). One study found that although chaplains cared for 5.9% of all ICU admissions, 81% of those who received their care also died in the ICU (Choi, Curlin, & Cox, 2015). The findings in this study further confirm that utilization of chaplaincy care is focused predominately on those with the most acute health needs; both evaluated and perceived (or patient-identified) health needs warranted greater chaplaincy care.

The associations found between chaplaincy care and length of stay, diagnosis, and ED admission suggest a more complex story. Although multiple studies have identified an association between long hospitalizations and receipt of chaplain care (Kirchoff et al., 2021), they do not provide an explanation for this relationship. Longer hospitalizations may both indicate more severe illness and provide greater opportunity for chaplain care. Regardless of that complexity, this study shows that chaplaincy care is concentrated on those with the acute health needs. Such evidence suggests that health systems should consider how to identify and address patients' spiritual needs and thus better align with preventative-proactive person-centered models.

Limitations

Several limitations within the present study should be noted. First, the endogeneity of the explanatory variables limits assumptions about the utilization of chaplaincy care. More data on the hospitalization would strengthen this analysis (i.e., if a patient stayed in the ICU, who/how a chaplain-initiated care). Second, the analysis used self-reported health and self-reported mental health as proxies for perceived health during one's hospitalization. The study would benefit from repeated measures of self-reported health/mental health. Third, patients who die in the hospital do not receive HCAHPS surveys and thus a substantial proportion of those visited by a chaplain did not appear in the sample; this introduces selection bias. Fourth, no standard staffing model exists for the provision of spiritual care in hospitals. This analysis assumes that the RUMC spiritual care department is typical of the spiritual care provided by departments with chaplaincy training programs in large academic medical centers during this period of time. Finally, the study assumes that the time documented by chaplains is a reliable measure for the amount of clinical care. Variations from one chaplain to the next and misestimations of that time are possible.

CONCLUSIONS

The present study examined population characteristics associated with the utilization of chaplaincy care as grounded by the Aday and Andersen (1974) access framework. The results identify a higher odd of receipt of care and rate of care for those religiously affiliated. The findings suggest that regardless of predisposing and enabling characteristics, hospitalized individuals with the most acute health needs are receiving chaplaincy care at higher rates. The interplay between religious affiliation, demographic

characteristics, and receipt of chaplaincy care warrants further investigation. Future research needs to explore the role staff play in how patients access chaplains, if this role limits access to professional spiritual care, or if staff-perceived spiritual need is related to evaluated spiritual need. An evidence-based and patient-centered approach requires health systems to implement systematic, reliable, and valid screening for spiritual needs. To embody the goals of patient-centered care within acute health settings, systems must prioritize the incorporation of chaplaincy and spiritual care for all patients.

Table 1. Characteristics & Bivariate Association for Receipt of Chaplaincy Care by Hospitalized Persons, n = 15,242

			No Chaplain Visit N (%)	Chaplain Visit N (%)	Total N (%)	Bivariate Association [a]
Predisposing Characteristics		N	11,220 (73.6)	4,022 (26.4)	15,242 (100)	
		Age (Mean/SD)	58.5 (15.6)	62.9 (15.0)	59.7 (15.5)	*p < 0.001*
		Female	6,509 (58.0)	2,369 (58.9)	8,878 (58.2)	*p =0.327*
	Race	White	7,918 (77.6)	2,577 (70.2)	10,495 (75.6)	*p <0.001*
	Ethnicity	Non-Hispanic	10,136 (90.3)	3,547 (88.2)	13,683 (89.8)	*p = 0.001*
	Language	English	10,299 (91.8)	3,648 (90.7)	13,947 (91.5)	*p = 0.075*
	Religious Affiliation	Religiously Affiliated	7,366 (65.7)	3,297 (82.0)	10,663 (70.0)	*p <0.001*
		None	2,796 (24.9)	546 (13.6)	3,342 (21.9)	
		Unspecified / Unknown	1,058 (9.4)	179 (4.4)	1,237 (8.1)	
Enabling Characteristics	Education	High School Grad or Less	2,961 (26.4)	1,419 (35.3)	4,380 (28.7)	*p < 0.001*
Need Characteristics	Self-Reported Health	Excellent, Very Good, Good	5,510 (49.1)	1,112 (27.6)	6,622 (43.4)	*p < 0.001*
	Self-Reported Mental Health	Excellent, Very Good, Good	7,793 (69.5)	2,171 (54.0)	9,964 (65.4)	*p < 0.001*
	Length of Stay	1 day	2,676 (23.8)	291 (7.2)	2,967 (19.5)	*p < 0.001*
		2 days	3,071 (27.4)	690 (17.2)	3,761 (24.7)	
		3 days	2,247 (20.0)	655 (16.3)	2,902 (19.0)	
		4 days	1,086 (9.7)	489 (12.2)	1,575 (10.3)	
		5 – 9 days	1,637 (14.6)	1,112 (27.6)	2,749 (18.0)	
		9+ days	503 (4.5)	785 (19.5)	1,288 (8.4)	
	Multiple Diagnostic Categories	Diseases of the Musculoskeletal System & Connective Tissue	4,795 (42.7)	906 (22.5)	5,701 (37.4)	*p < 0.001*
		Diseases & Disorders of the Circulatory System	832 (7.4)	533 (13.2)	1,365 (9.0)	
		Diseases & Disorders of the Nervous System	1,261 (11.2)	535 (13.3)	1,796 (11.8)	
		All Others	4,215 (37.6)	1,974 (49.1)	6,189 (40.6)	
Control Variables	ED Admission	Yes	2,659 (23.7)	1,649 (41.0)	4,308 (28.3)	*p < 0.001*
	Admit Quarter	First Quarter (Jan – Mar)	2,888 (25.7)	1,075 (26.7)	3,963 (26.0)	*p = 0.433*

	Second Quarter (Apr-June)	2,959 (26.4)	1,048 (26.1)	4,007 (26.3)	
	Third Quarter (July – Sept)	2,751 (24.5)	944 (23.5)	3,695 (24.2)	
	Fourth Quarter (Oct – Dec)	2,622 (23.4)	955 (23.7)	3,577 (23.5)	
Admit Year	2012	836 (7.4)	346 (8.6)	1,182 (7.7)	*p < 0.001*
	2013	2,221 (19.8)	854 (21.2)	3,075 (20.2)	
	2014	2,035 (18.1)	728 (18.1)	2,763 (18.1)	
	2015	1,911 (17.0)	762 (18.9)	2,673 (17.5)	
	2016	2,609 (23.2)	871 (21.7)	3,480 (22.8)	
	2017	1,608 (14.3)	461 (11.5)	2,069 (13.6)	

[a] For means, t-test; for categorical variables, χ^2 test

Table 2. Bivariate Associations of Variations in Utilization of Chaplaincy Care, n = 4,022

			Range of Minutes (Min, Max)	Mean Minutes (SD)	Median Minutes [IQR]	Bivariate Association [a]
Predisposing Characteristics		Age [b]	(1, 1005)	56.6 (81.6)	30 [15, 65]	*p = 0.612* [b]
		Female	(1, 890)	56.5 (84.1)	30 [15, 65]	*p = 0.39*
		Male	(1, 1005)	56.9 (77.9)	30]15, 65]	
	Race	White	(1, 890)	54.8 (80.6)	30 [15, 60]	*p = 0.007*
		Non-White	(1, 1005)	61.1 (85.5)	30 [15, 70]	
	Ethnicity	Non-Hispanic	(1, 1005)	55.4 (79.8)	30 [15, 60]	*p = 0.001*
		Hispanic	(2, 925)	66.1 (95.8)	30 [15, 75]	
	Language	English	(1, 1005)	56.6 (82.5)	30 [15, 65]	*p = 0.251*
		Other Languages	(1, 810)	56.9 (72.5)	30 [15, 70]	
	Religious Affiliation	Religiously Affiliated	(1, 1005)	56.6 (81.6)	30 [15, 65]	*p = 0.001*
		None	(1, 695)	49.1 (74.4)	26.5 [12, 55]	
		Unspecified / Unknown	(1, 290)	44.3 (52.8)	30 [15, 50]	
Enabling Characteristics	Education	High School Grad or Less	(1, 729)	57.7 (77.0)	30 [15, 67]	*p =0.013*
		Some College or More	(1, 1005)	55.5 (84.2)	30 [15, 60]	
Need Characteristics	Self-Reported Health	Excellent, Very Good, Good	(1, 1005)	46.1 (74.4)	25 [10, 50]	*p < 0.001*
		Fair, Poor	(1, 925)	60.9 (85.1)	30 [15, 70]	
	Self-Reported Mental Health	Excellent, Very Good, Good	(1, 1005)	52.9 (85.1)	25 [15, 55]	*p < 0.001*
		Fair, Poor	(1, 770)	61.6 (78.2)	35 [15, 75]	
	Length of Stay	1 day	(2, 425)	45.2 (63.0)	20 [10, 50]	*p < 0.001*
		2 days	(1, 615)	47.2 (68.1)	25 [10, 50]	
		3 days	(1, 890)	49.7 (74.9)	25 [15, 55]	
		4 days	(2, 390)	51.2 (61.1)	30 [15, 60]	
		5 – 9 days	(2, 865)	57.2 (82.2)	30 [15, 62.5]	
		9+ days	(1, 1005)	77.7 (106.7)	45 [20, 90]	
	Multiple Diagnostic Categories	Diseases of the Musculoskeletal System & Connective Tissue	(1, 783)	39.8 (64.5)	20 [10, 40]	*p < 0.001*
		Diseases & Disorders of the Circulatory System	(2, 700)	61.6 (81.7)	30 [15, 70]	
		Diseases & Disorders of the Nervous System	(1, 695)	52.2 (69.4)	30 [15, 60]	

		All Others	(1, 1005)	63.7 (89.7)	35 [15, 75]	
Control Variables	ED [c] Admission	Yes	(1, 1005)	64.6 (88.4)	35 [15, 75]	*p < 0.001*
		No	(1, 925)	50.2 (76.2)	25 [15, 55]	
	Admit Quarter	First Quarter (Jan – Mar)	(1, 783)	54.2 (73.4)	30 [15, 60]	*p = 0.530*
		Second Quarter (Apr-June)	(1, 925)	58.1 (89.2)	30 [15, 65]	
		Third Quarter (July – Sept)	(1, 1005)	60.1 (86.2)	30 [15, 70]	
		Fourth Quarter (Oct – Dec)	(1, 810)	54.3 (76.8)	30 [15, 60]	
	Admit Year	2012	(2, 590)	55.0 (76.9)	25 [15, 60]	*p = 0.051*
		2013	(1, 865)	62.2 (90.1)	30 [15, 70]	
		2014	(2, 1005)	57.8 (82.8)	30 [15, 67]	
		2015	(1, 770)	57.2 (80.7)	30 [15, 65]	
		2016	(2, 925)	54.3 (78.3)	30 [15, 60]	
		2017	(1, 783)	49.2 (73.3)	25 [10, 55]	

[a] When more than 2 groups, Kruskal-Wallis Test; when 2 groups, Wilcoxon Rank Sum
[b] Spearman Correlation, [c] Emergency Department

Table 3. Two Part Hurdle Model for Utilization of Chaplaincy Care

			Logistic Model		Zero-truncated Negative Binomial Model	
			Model 1		Model 2	
			Odds Ratio	95% Confidence Interval	Incident Rate Ratio	95% Confidence Interval
Predisposing Variables		Age	1.01**	(1.01 - 1.02)	0.99**	(0.99 – 1.00)
	Sex	Female (vs. Male)	1.18**	(1.08 - 1.30)	1.00	(0.90 - 1.10)
	Race	Non-White (vs. White)	0.97	(0.87 - 1.08)	1.00	(0.90 - 1.12)
	Ethnicity	Hispanic (vs. Non-Hispanic)	1.23	(1.00 - 1.51)	1.24	(1.00 - 1.53)
	Language	Other Languages (vs. English)	0.82	(0.66 – 1.01)	0.91	(0.74 – 1.11)
	Religious Affiliation	Religiously Affiliated (vs. None)	2.19**	(1.94 -2.47)	1.24**	(1.07 – 1.44)
		Unspecified/Unknown (vs. None)	0.84	(0.67 -1.05)	0.89	(0.71 – 1.13)
Enabling Variable	Education	Some College or More (vs. High School or Less)	0.95	(0.86 - 1.05)	1.02	(0.92 - 1.14)
Need Variables	Multiple Diagnostic Categories	Diseases & Disorders (D&D) of the Circulatory System (vs. D&D of Musculoskeletal System/Connective Tissue)	2.58**	(2.00 - 3.33)	1.47**	(1.24 - 1.74)
		D&D of the Nervous System (vs. D&D of Musculoskeletal System/Connective Tissue)	2.24**	(1.76 - 2.86)	1.25*	(1.05 - 1.48)
		All Others (vs. D&D of Musculoskeletal System/Connective Tissue)	2.08**	(1.72 - 2.51)	1.47**	(1.28 - 1.63)
	Length of Stay	2 Days (vs. 1 Day)	1.63**	(1.38 - 1.93)	1.09	(0.89 - 1.34)
		3 Days (vs. 1 Day)	1.81**	(1.51 - 2.17)	1.17	(0.94 - 1.44)
		4 Days (vs. 1 Day)	2.26**	(1.84 - 2.78)	1.19	(0.97 - 1.46)
		5-9 Days (vs. 1 Day)	2.74**	(2.20 - 3.43)	1.32*	(1.09 - 1.59)
		9 + Days (vs. 1 Day)	3.80**	(2.56 - 5.64)	1.85**	(1.52 – 2.26)
	Self-Rated Health: Poor/Fair (vs. Excellent, Very Good, Good)		1.47**	(1.33 - 1.64)	1.24**	(1.10 - 1.40)
	Self-Rated Mental Health: Poor/Fair (vs. Excellent, Very Good, Good)		1.20**	(1.08 - 1.33)	1.07	(0.96 - 1.19)
Control Variables	ED Admission	Yes (vs. No)	1.60**	(1.37 - 1.86)	1.17**	(1.05 - 1.29)
	Quarter of Admission	Second Quarter Admission (vs. First)	0.98	(0.87 - 1.11)	1.07	(0.93 - 1.22)
		Third Quarter Admission (vs. First)	0.87*	(0.76 - 0.99)	1.12	(0.98 - 1.29)

	Fourth Quarter Admission (vs. First)	0.93	(0.81 - 1.06)	1.03	(0.96 - 1.44)
	2013 Admission (vs. 2012)	0.87	(0.77 - 1.06)	1.17	(0.88 - 1.33)
	2014 Admission (vs. 2012)	0.85	(0.70 - 1.03)	1.08	(0.84 - 1.25)
	2015 Admission (vs. 2012)	0.92	(0.75 - 1.11)	1.02	(0.82 - 1.21)
	2016 Admission (vs. 2012)	0.86	(0.71 - 1.05)	1.00	(0.83 - 1.20)
	2017 Admission (vs. 2012)	0.74**	(0.59 - 0.92)	0.89	(0.70 - 1.14)
Year of Admission	Yes ED Admission * Length of Stay [a]	1.08**	(1.05 - 1.10)		
	No ED Admission * Length of Stay [a]	1.04**	(1.02 - 1.07)		
	D&D of Musculoskeletal System & Connective Tissue * Length of Stay [a]	1.08***	(1.04 – 1.12)		
	D&D of Nervous System * Length of Stay [a]	0.98	(0.95 - 1.01)		
	D&D of the Circulatory System * Length of Stay [a]	0.97	(0.94 - 1.00)		
	Observations	12,749		3,245	
	Pseudo R Squared	0.16		0.01	
	Wald Chi Square (df)	12,749 (32), *p<0.001*		283.99 (27), *p<0.001*	
	Log Likelihood	-6093.72		-16,067.78	
	Hosmer Lemeshow	$\chi^2(8) = 14.71$, p = 0.07			
	AIC	12,253.44		32,193.55	
	BIC	12,499.39		32,370.01	
	Classification Rate	76.9%			

* p<0.05, ** p<0.01

[a] Length of stay used as continuous variable for interaction terms, [b] Emergency Department

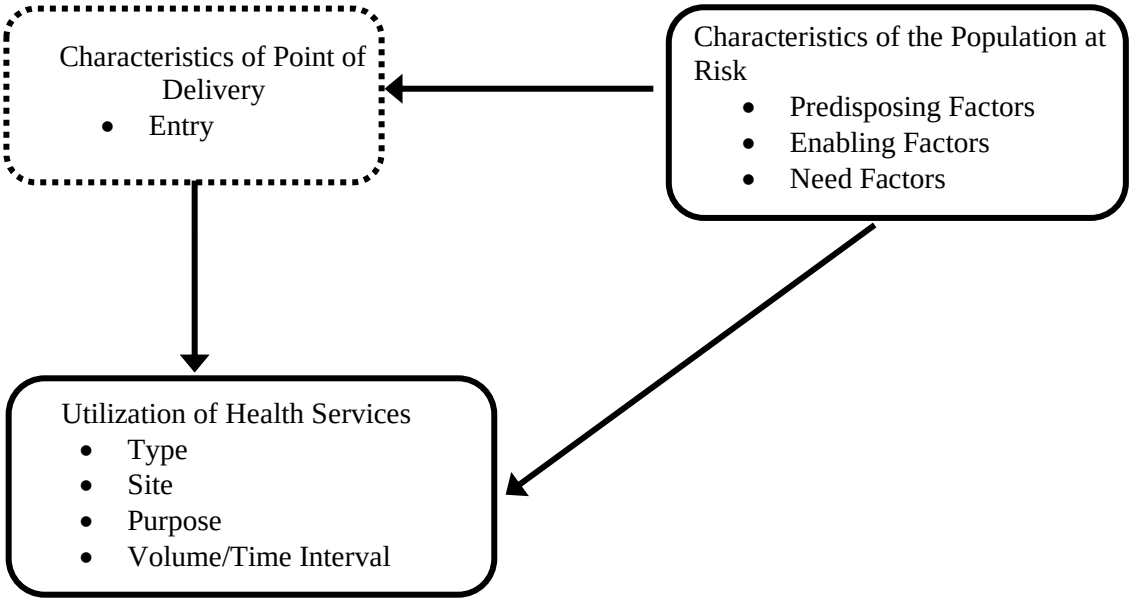
Table 4. Statistical Significance by Variable

Hyp. #		Bivariate		Multivariate		
		Table 1.	Table 2.	Table 3 – Part 1	Table 3 – Part 2	Hypothesis Confirmed? [b]
		No Visit v. Visit	Amount of Time	No Visit v. Visit	Amount of Time	
1a.	Age	X[a]		X	X	Partial
1b.	Sex			X		Partial
1c.	Race	X	X			No
1d.	Ethnicity	X	X			Yes
1e.	Language					Yes
1f.	Religious Affiliation	X	X	X	X	Yes
2.	Education	X	X			Yes
3a.	Self-reported Health	X	X	X	X	Yes
3b.	Self-reported Mental Health	X	X	X		Partial
3c.	Length of Stay	X	X	X	X	Yes
	MDC	X	X	X	X	N/A

[a] X indicates statistically significant association detected.

[b] Hypothesis noted confirmed fully based on multivariate analysis.

Figure 1. Conceptual Model (adapted from Aday & Andersen, 1974)



CHAPTER 2: THE INFLUENCE OF INSTITUTIONAL AND ENVIRONMENTAL FACTORS ON THE PROVISION OF CHAPLAINCY CARE WITHIN U.S. HOSPITALS

OVERVIEW

PURPOSE: To identify what institutional and environmental factors are associated with reporting a chaplaincy department.

METHODOLOGY: This study combined data from the American Hospital Association (AHA) Annual Survey with the Area Health Resource File (AHRF) at the county level to examine what factors were associated with reporting a chaplaincy department from 2010 to 2019. Institutional and environmental independent variables, as guided by Institutional Theory and Resource Dependency Theory, were examined for a sample of adult general medical/surgical hospitals (N = 45,384). A pooled panel logistic regression, with clustered standard errors at the hospital level, examined how institutional and environmental factors from a year prior impacted whether or not a hospital reported a chaplaincy department. A subsample of hospitals that both reported an operated all ten years were examined with bivariate analyses to explore associations with gaining or losing a department.

RESULTS: More institutional factors than environmental factors were associated with a hospital reporting a chaplaincy department. Specifically, hospitals with at least one intensive care unit, accreditation from the Joint Commission, non-profit ownership, and that were members of a health system were more likely to report a department. Larger

hospitals and those with higher proportion Medicare inpatient days were also at higher odds. More munificent environments (greater per capita income and urban areas) also had higher odds of reporting a department. The subsample analysis further identified that the highest proportion of hospitals that lost a department were smaller in size, more rural, and located in less munificent counties.

PRACTICE IMPLICATIONS: The disparities for healthcare access extend to the provision of patient-centered care and the provision of hospital chaplaincy services. Variations in spiritual care provision impact healthcare costs, health outcomes, and quality of care. Healthcare policymakers must examine the intentional inclusion of chaplaincy care in efforts to expand healthcare access and healthcare administrators must prioritize the employment of board-certified chaplains.

THE INFLUENCE OF INSTITUTIONAL AND ENVIRONMENTAL FACTORS ON THE PROVISION OF CHAPLAINCY CARE WITHIN U.S. HOSPITALS

INTRODUCTION

U.S. healthcare delivery began an evolution in the early 2000s that included legislative action representative of a growing acceptance of patient-centered care. Healthcare policymakers emphasized that healthcare delivery organizations needed to prioritize access, improve quality, and reduce costs (Berwick, Nolan, & Whittington, 2008; Whittington, Nolan, Lewis, & Torres, 2015) with the adoption of the Patient Protection and Affordable Care Act in 2010. Slowly, from 2010 to 2014, reimbursement metrics changed from traditional fee-for-service to a complex algorithm that included metrics for patient experience (Tobin-Tyler & Teitelbaum, 2019). How patients and other individuals experienced their care, such as a hospitalization, became a central factor in how much financial aid payers would give providers and reimburse for services. Such changes challenged hospitals to develop strategies to provide patient-centered, whole-person care and minimize spending relative to each state's approach to policy implementation. Some hospitals offered a more expansive array of services to improve quality (Trinh & Begun, 1999) while other hospitals used multidisciplinary care teams with specialized clinicians to mitigate medical complications and adverse events (Pannick et al., 2015). Regardless of approach, providing patient-centered care requires specialists beyond the typical physician-nurse dyad.

A number of research studies describe how physicians and nurses understand the role of professional spiritual care providers, herein referred to as chaplains, as part of the

multidisciplinary team. Physicians report that chaplains strengthen goals-of-care conversations (Fitchett et al., 2011) and increase physicians' awareness of the complex dynamics present in patients' lives (Cunningham, Panda, Lambert, Daniel, & DeMars, 2017). Nurses describe that chaplains provide patients/families with emotional support and engage in difficult conversations that improve the quality of care provided (Purvis et al., 2019). Palliative care teams prioritize chaplains for the facilitation of conflict resolution between patients, families, and the care team (Damen et al., 2019). Further, individuals who have received any visit from a chaplain, tend to rate their overall hospital experiences and perceptions of staff care more favorably (Marin et al., 2015).

Healthcare systems worldwide have embraced the value of spiritual care services in acute care (Oman & Brown, 2018); however little is known about the factors that influence the provision and incorporation of chaplaincy services within U.S. hospitals. Hospital chaplaincy services are non-billable and non-revenue generating services, and thus the extent of their incorporation and centrality for care delivery will differ from one hospital to the next. Further, no regulatory body oversees who provides professional spiritual care and to what extent. Hospitals may use the service as a strategy for patient-centered care, however, little is known about what type of hospitals do and do not provide these services. Thus, this paper seeks to answer the following question: *what factors influence the provision of spiritual care in U.S. hospitals from 2010 to 2019?*

THEORY

Institutional Theory (IT) and Resource Dependency Theory (RDT), combined, offer a theoretical framework to examine this question. IT suggests that organizations want to appear legitimate and will adapt to conform to specific standards and social

expectations (Scott et al., 2000; Mascia et al., 2013). *Coercive mechanisms* force institutions to change or comply based on regulatory standards; *normative mechanisms* challenge institutions to change or comply based on what is considered morally acceptable; and *mimetic mechanisms* influence institutions to change or adapt to mirror existing similar organizations (DiMaggio & Powell, 1983). For some, this will require identifying a balance between adaptations needed for legitimacy and organizational profit (survival; DiMaggio & Powell, 1983).

RDT presumes that no one organization owns all the resources it needs to operate and must depend on environmental resources (Pfeffer & Salancik, 1978; Scott & Davis, 2007). Environmental *munificence* denotes the existent resources, although not possessed by an organization, available to an organization (Dess & Beard, 1984; Yeager, Zhang, & Diana, 2015). Environmental *dynamism* is the to uncertainty present within an organization's environment (Dess & Beard, 1984). *Dynamism* refers to the stability of resources that ultimately impact an organization's operations and survival. Environmental *complexity* represents the level of competition within the environment that influences organizational strategy and choices (Smart & Vertinksy, 1984).

Jointly, these two theories suggest that each hospital faces various levels of pressure to adapt and survive from sector-specific pressures as well as within their local environment. While RDT suggests that environmental resources drive hospital strategies for survival, IT compliments it with further emphasis on industry pressure (Balotsky, 2005; Sherer & Lee, 2002). The accessibility of external resources and industry pressures determine hospitals' service provision strategies (Balotsky, 2005; Oliver, 1991).

Institutional Factors

Until now, researchers have yet to consider how institutional and environmental factors, together, may affect the provision of hospital spiritual care. Theorists propose that coercive, normative, and mimetic mechanisms influence an organization's activities and service choices (Scott & Davis, 2007). No coercive mechanism exists to pressure hospitals to provide spiritual care services. Instead, the institutional pressure to provide spiritual care services comes from normative and mimetic mechanisms.

Normative pressure often challenges hospitals to provide a wide array of services to patients with acute health needs (Oliver, 1991; Goodstein, 1995). Hospitals find legitimacy from following a morally accepted norm and operate in what is understood as the appropriate structure (Scott & Davis, 2007). Accreditation or certification are indicators of adapting to normative pressure that influences organizations to provide specific services. Hospitals that utilize Joint Commission accreditation to demonstrate the maintenance of a specific quality of services provided are required to provide a spiritual assessment of all hospitalized persons (Cadge et al., 2008). Thus, we hypothesize:

H1. Hospitals with Joint Commission accreditation will be more likely to report a chaplaincy department over a ten-year period.

Non-chaplain clinical staff report the belief that chaplaincy services are for acute health situations and those involving end-of-life care (Cadge, Calle, & Dillinger, 2011; Fitchett et al., 2009). Further, individuals with longer hospitalizations or with poor/fair self-rated health identified often receive services at a greater rate (White, Jennings, Karimi, Johnson, & Fitchett, 2021). Thus, one would anticipate that hospitals serving more

acutely ill patients would be more likely to report a chaplaincy department. Thus, we hypothesize the following:

H2. Hospitals with at least one intensive care unit will be more likely to report a chaplaincy department over a ten-year period.

H3. Hospitals with emergency departments will be more likely to report a chaplaincy department over a ten-year period.

H4. Hospitals identifying as a trauma (Level 1, 2, 3 or Rural) facility will be more likely than non-trauma hospitals to report a chaplaincy department over a ten-year period.

Mimetic mechanisms, or cultural accepted standards, also pressure hospitals to provide specific services based on their ownership or network of affiliations. Non-profit hospitals focus on societal interests and needs that often differentiate them from for-profit institutions (Proenca, Rosko, & Zinn, 2002). These hospitals may prioritize the provision of spiritual care as a social good rather than a profit maximization approach. Hospitals with government funding, whether from the federal or state/local level, may be less likely to provide such services due to the traditional separation of church and state. In addition, for hospitals participating in a system of providers, the provision of a wide array of services increases legitimacy within their local area and field (Balotsky, 2005). If a hospital participates within a system where other hospitals provide chaplaincy services, then to be seen as legitimate requires it to do the same (Edelman, 1992). The opposite could be argued regarding critical access hospitals. These hospitals are located in rural areas in order to increase access to care. These hospitals, although they adopt many of the same practices as those located in urban areas, they lag behind in providing services that

impact patient experience (Apathy, Holmgren, & Adler-Minstein, 2021). Therefore, we hypothesize the following:

H5. For profit hospitals will be more likely than non-profit hospitals to report a chaplaincy department over a ten-year period.

H6. Government hospitals, whether federal or non-federal, will be less likely than non-for-profit hospitals to report a chaplaincy department over a ten-year period.

H7. Hospitals that are members of systems will be more likely to report a chaplaincy department over a ten-year period.

H8. Critical access hospitals will be less likely to report a chaplaincy department.

Further, although no standard for chaplaincy staffing exists, the common discourse regarding the amount of chaplaincy staffing ranges from suggesting one chaplain per 30 beds to one chaplain per 100 beds (Association of Professional Chaplains, 2009; Wintz & Handzo, 2005). Such standards lead us to hypothesize the following:

H9. Larger hospitals will be more likely to report a chaplaincy department over a ten-year period.

Hospitals caring for a large proportion of Medicare patients also serve an older population. Age is positively associated with utilization of a chaplain (White et al., 2021) and older patients often report higher levels of religiosity (Pew Research Center, 2015). Serving older patient populations may cause mimetic pressure for the provision of a specific service, such as spiritual care. Further research has reported that both teaching hospitals and church owned/operated hospitals (versus those without a religious affiliation) have higher odds of reporting a chaplaincy department (Cadge, Freese & Christakis, 2008). Thus, we hypothesize the following:

H10. Hospitals with a larger proportion of Medicare inpatient days over a ten-year period will be more likely to report a chaplaincy department.

H11. Teaching hospitals will be more likely to report a chaplaincy department than non-teaching hospitals over a ten-year period.

H12. Church owned or operated hospitals will be more likely to report a chaplaincy department over the ten-year period.

Environmental Factors

Environmental factors impact organizational choices and service provision as well. Researchers who have examined the applicability of RDT on organizational adaptation consider factors within three areas of influence: dynamism, munificence, and complexity (Yeager et al., 2014). Typically, as dynamism increases in an environment with greater environmental uncertainty and thus an organization faces less incentive to shift resource dependencies. As individuals age, they may grow increasingly dependent on healthcare services and are at a higher risk for acute health events (Saliba et al., 2001). Hospitals located in counties with increasing proportions of individuals over 65 years old may anticipate greater service use over time. This may create a steady flow of income/resources supportive of the inclusion of a non-billable services such as chaplaincy (Balotsky, 2005). Although unemployment rates are often used as proxies for a demand for uncompensated care and thus hospital profits (Hsieh, Clement, & Bazzoli, 2010; Rosko, 2004) qualitative research suggests that administrators rely more on staff needs or organizational values, rather than financial concerns, to make chaplaincy staffing decisions (Antoine et al., 2021). Thus, we hypothesize the following:

H13a. As the proportion of persons 65 years and older increases within a county over a ten-year period, a hospital will have greater odds of reporting a chaplaincy department.

H13b. The unemployment rate over a ten-year period within a county will not be associated with reporting a chaplaincy department.

Hospitals located in more munificent counties, those with more per capita income, have more income, may have more flexible spending. Since chaplaincy departments do not charge for their services, hospitals depend on the revenue generated elsewhere to employ these professionals (Warnock, 2009). If a hospital operates in an area with a lower per capita income, then it may need to rely on external resources, such as community clergy or volunteers, to provide spiritual care services. Urban locations are also known for a greater abundance of specialty clinicians (Sequist, 2011). Since many non-chaplain clinical professionals consider chaplains specialists (Thiel & Robinson, 1997), urban settings may have a greater opportunity for a hospital to provide such services. Thus, we hypothesize the following:

H14a. As per capita income increases in a county over a ten-year period, a hospital will have greater odds of reporting a chaplaincy department.

H14b. Hospitals in urban locations will be more likely to report a chaplaincy department than hospitals in rural settings over a ten-year period.

Both Zinn and colleagues (1997) and Alexander and Weiner (1998) identified that the environmental *complexity* impacts an organization's strategic choices. More urban areas tend to have fewer beds per person due to population density. Hospitals with less

flexible resources utilize less innovative interventions or may decide not to implement quality improvement methods in service delivery (Alexander & Weiner, 1998).

H15a. As the ratio of beds to persons increases within a county over a ten-year period, the odds of a hospital reporting a chaplaincy department will decrease.

State-level decisions about Medicaid expansion further adds to a hospital's environmental *complexity* (Sisko et al., 2014). States that expanded Medicaid face health expenditure challenges due to serving high proportions of populations with complex health needs (Sommers, Baicker, Epstein, & 2012). Those states also see higher healthcare revenue than states without the expansion (Blavin, 2016). Such levels of insecurity may cause hospitals to maintain current service provision and not risk the use of a chaplaincy department. Thus, we hypothesize the following:

H15b. The expansion of Medicaid coverage after the ACA, will not be associated with a hospital reporting a chaplaincy department over the ten-year period.

METHODS

Data

Hospital information, from the American Hospital Association (AHA) Annual Survey, was matched with county-level characteristics from the Area Health Resource File (AHRF). AHA survey data contains information on adult medical/surgical hospitals, adulty specialty hospitals, and pediatric hospitals. The analysis focused on adult medical/surgical hospitals present within the AHA data from 2010 to 2019. Information on institutional factors were present in the AHA data and then matched to county level, environmental independent variables from the AHRF. The Institutional Review Board at the University of Louisville deemed this study exempt.

Dependent Variable

The AHA survey reports on the existence of a chaplaincy department via three variables. Each responding hospital indicates if it has a "chaplaincy/pastoral care services-hospital", "chaplaincy/pastoral care services-system," or "chaplaincy/pastoral care services-joint venture." Hospitals were coded 1/yes if they answered "yes" to any of these three and 0/no if no to all three to create a dichotomous outcome variable.

Institutional Independent Variables

The institutional factors included a number of dichotomous independent variables: hospital acuity, church relationship, status as a critical access hospital, if it had an Emergency Department (ED), if it was accredited by the Joint Commission (JC), if it belonged to a system, if it identified as a teaching hospital, or as a trauma hospital. Hospital acuity referred to whether or not the hospital operated at least one intensive care unit (ICU). Church relationship captured whether or not the hospital reported being owned or operated by a Catholic Health System or by another religious body. Critical access hospitals were designated by the Center for Medicare and Medicaid Services (CMS) as rural and limited-service hospitals. The AHA considered a major teaching hospital as one with a Council of Teaching Hospitals' designation. Whether or not a hospital reported being a trauma facility became dichotomous from the AHA designation of Level 1, 2 and Rural Trauma Centers.

Other institutional independent variables included hospital ownership, the percent of inpatient Medicare days, and hospital size. AHA captures ownership through four large categories: government/non-federal, government/federal, nongovernment/not-for-profit, and investor-owned/for-profit. This analysis conflated government/non-federal and

government/federal due to the role of government and use of tax-payer dollars. The total number of Medicare inpatient days was divided by the total number of inpatient days for a percentage of inpatient Medicare days. Finally, analysis included the number of beds hospitals reported were set up and staffed.

Environmental Independent Variables

Environmentally, this analysis examined factors at the county level. Specifically, it included the number of persons 65 years and older (per 100), the unemployment rate (persons per 100), the per capita personal income, whether or not the hospital operated within an urban location, and the beds per capita (per 100 county beds). AHRF provided the number of persons 65 years and older which was divided by the population estimate and then multiplied by 100 for the rate. The unemployment rate was a ratio of the number of unemployed individuals 16 years and older to those employed within the civilian labor force, times 100. Per capita personal income, reported in dollars, is the total income in a county divided by the county's population. Urban location was a dichotomous measure reported by AHA as to whether the hospital was located within a metropolitan area. The U.S. Census Bureau defines a metropolitan area as one with over 250,000 persons. Beds per capita was calculated by generating a ratio of total staffed beds within a county to the population estimate, multiplied by 100. Finally, analysis considered when and whether or not a hospital's state chose to expand Medicaid over the years studied (see Kaiser Family Foundation, "Status of State Medicaid Expansion Decisions").

Control Variables

Religiosity can vary in different parts of the U.S., thus the analysis controlled for a hospital's regional location as determined by the U.S. Census Bureau (Midwest,

Northeast, South, West). Additionally, the proportion of inpatient days attributed to Medicaid patients may impact the extent of financial resources available to a hospital.

Analysis

The analysis focused on adult general medical/surgical hospitals but reported the frequencies of chaplaincy departments in specialty and pediatric hospitals in Appendix 1. Hospitals operated in outlying U.S. territories were removed from analysis as well as Veteran's Administration (VA) hospitals since they have required chaplaincy departments since inception (Cadge et al., 2008).

A longitudinal analysis of hospitals' adoption of a chaplaincy department requires sufficient variation in chaplaincy status and its hypothesized determinants within hospitals. Ideally, a panel logistic regression with hospital fixed effects would help account for unobserved time-invarying hospital characteristics and control for serial correlation with an appropriate clustering of standard error (Arellano, 2003; Angrist & Pischke, 2009). However, overtime variation within the key variables in this study was insufficient for fixed-effect modeling. Also, since all hospitals do not appear each year within the data, analysis examined the research question with an unbalanced panel dataset.

The research team compiled the descriptive statistics based on reporting year as well as by chaplaincy department response (Table 5 and Table 6, respectively). Both independent variables and the dependent variable were examined for missingness and changes over time.

Since traditional panel methods were not applicable, the team employed a pooled panel logistic regression controlling for clustering at the hospital level (Cameron &

Miller, 2015; Hansen, 2007; Stock & Watson, 2008). Although the year hospitals reported on their services and activities impact one another, we structured the analysis under the assumption that the factors from the previous year impacted whether a hospital would provide chaplaincy services in the reporting-year. Both institutional and environmental characteristics from the year prior to the reporting-year were analyzed with respect to the outcome variable. Regression diagnostics included examination of the model classification rate for the goodness of fit and distribution of residuals. Theoretical interactions between independent variables were also examined for appropriateness.

The inconsistencies for yearly hospital survey participation highlighted a need to examine a smaller sample further. After the pooled panel regression, the team examined a small subset of hospitals that both reported all ten years as well as were open and in operation all ten years. The changes in chaplaincy department reporting were identified based on whether a hospital 1) always reported a department, 2) never reported a department, 3) gained a department, 4) lost a department, and 5) fluctuated in their reporting. The characteristics of the hospitals in 2010 were compared in bivariate analyses: never having a department versus gaining a department and always having a department versus losing a department. STATA/SE version 16.1 was used for analysis.

RESULTS

Overall, the dataset contained 45,384 observations on 4,933 unique adult medical/surgical hospitals. In 2010, 61.4% of the reporting hospitals had a chaplaincy department and 60.7% of reporting hospitals had one in 2019 (Table 5 and 6). Multivariate analysis suggested that seven of the twelve (58.3%) institutional factors were associated with reporting a chaplaincy department and three of the six (50.0%)

environmental factors over the ten-year period (Table 7). Among the hospitals that reported and operated all ten years, a majority always had a chaplaincy department (71.1%) and more hospitals gained than lost a department (172 hospitals versus 91).

Responsiveness of adult medical/surgical hospitals to the AHA annual survey ranged from 76.1% to 82.9%. Missingness for the independent variables ranged from less than 0.01% (persons 65 years old per 100, beds per capita) to 19.3% (ICU department, ED department). Among the 45,384 observations, 19.3% (8,755 observations) were missing values for the dependent variable. These missing observations were associated with a lack of response to the survey in a specified year (i.e., if a hospital did not respond in a particular year, the dataset reported the chaplaincy department status as missing).

Descriptive statistics by year and whether or not a chaplaincy department was reported were detailed in Table 5 and Table 6. Independent variables for ED, church, and teaching hospital were not included in multivariate analysis because very few did not have an ED (0.18%), were not affiliated with a religious body (14.1%), and few were teaching (5.4%). The multivariate analyses are presented in Table 7, and summary of the results corresponding hypotheses were summarized in Table 8.

Chaplaincy Departments and Institutional Factors

Seven institutional factors influenced whether a hospital reported a chaplaincy department. Hospitals more likely to report a chaplaincy department had at least one ICU, were JC accredited, were non-profit, had a higher percent Medicare inpatient days, had more staffed beds, and belonged to a health system. Hospitals reporting JC accreditation were 1.72 times (95% CI, 1.42 – 2.07) more likely to report a chaplaincy department and hospitals with at least one intensive care unit were 1.33 times (95% CI, 1.07 – 1.64) more

likely to report a chaplaincy department than those without. For-profit hospitals (OR = 0.23; 95% CI, 0.18 - 0.29) and government hospitals (OR = 0.59; 95% CI, 0.48 - 0.73) had lower odds than non-profit hospitals of reporting a chaplaincy department. Additionally, hospitals that reported to be a part of a health system were 1.93 times (95% CI, 1.62 - 2.29) more likely to report a chaplaincy department than those not in a health system. There was no association between being a critical assess hospital and reporting a chaplaincy department. As number of staffed beds increased, so did a hospital's odds of reporting a chaplaincy department. A positive association also existed between a hospital's percent Medicare inpatient days and reporting a chaplaincy department (OR = 2.96; 95% CI, 1.99 - 4.40).

Chaplaincy Departments and Environmental Factors

Among the environmental factors examined, only three were associated with reporting a chaplaincy department. Hospitals located in urban counties and with an increasing per capital income were more likely to report a chaplaincy department. Two of the three were indicators of environmental munificence and one an indicator of environmental complexity. None of the environmental dynamism factors were associated with reporting a chaplaincy department. As the per capita income increased in a county, so did the odds of a reporting a chaplaincy department increased by 1.79 times (95% CI, 1.14 – 2.80). Hospitals in urban areas were also 1.30 times (95% CI, 1.08 – 1.57) more likely than hospitals in rural areas to report a chaplaincy department. In terms of complexity, the inverse association between beds per capita and reporting a chaplaincy was identified (OR = 0.71; 95% CI, 0.63 - 0.81).

Sub-sample Analysis

Some hospitals may have lost or gained a chaplaincy department. Since the number of hospitals and response rate within the AHA data fluctuated, detecting these changes required a more detailed examination. Over 2,300 hospitals reported and operated in all 10 of examined AHA data (Table 9). They were categorized based on whether they 1) never had a chaplaincy department, 2) always had a chaplaincy department, 3) gained a chaplaincy department, 4) lost a chaplaincy department, 5) fluctuated in these services, or 6) never reported about these services over the ten-year period (see Figure 2). Of those that reported, 87.5% of hospitals reported a chaplaincy department at one time or another; more gained that lost a department. The proportion of hospitals reporting a department increased over the ten years, from 74.6% in 2010 to 79.8% in 2019. Table 10 shows the comparison between hospitals that never had a department and gained one from 2010 to 2019. Eight of 12 institutional variables differed between groups and four of five environmental factors. Hospitals that gained a chaplaincy department were more likely to report at least one ICU versus those that never had a department (56.4% versus 38.3%) and more likely to have some church affiliation (7.5% versus 3.5%). A smaller proportion of hospitals that gained departments were critical access (49.4% versus 68.3%) and a higher proportion of those that gained a department were JC accredited (49.4% versus 24.5%). Most gaining a department identified as non-profit hospitals and had more beds (Mdn = 45.5 versus 25.0). A larger proportion of those gaining a department participated in a health system (44.2% versus 29.7%). There were fewer persons over 65 years old in counties where hospitals gained a department, a higher unemployment rate, and were more likely urban.

Tables 11 reports the bivariate comparison between hospitals that always had a chaplaincy department and those that lost a chaplaincy department. The results identified eight of 12 institutional factors and four of five environmental factors that were associated with losing a chaplaincy department over the ten-year period. The proportion of hospitals that reported at least one ICU was lower among those that lost a department compared to hospitals always reporting a department (61.5% versus 90.5%). A greater proportion of the hospitals that lost a department were critical access and fewer were JC accredited. These hospitals also averaged below 100 beds (Mdn = 34.0, IQR = 25.0, 95.0) and were not teaching hospitals. Hospitals losing chaplaincy departments also operated in counties with more individuals over 65 years old than hospitals that always reported a department; hospitals losing a department were also located in counties with lower unemployment rates. Counties where hospitals lost a department averaged 4,637.44 dollars less in per capita income and were less likely to be urban (22.0% versus 52.4%).

DISCUSSION

The last ten-years of healthcare legislative changes and the historically market-driven environment has challenged U.S. hospitals to adopt various strategies to ensure organizational survival. The shift to patient-centered care models has pressured hospitals to adapt existing strategies and services to more broadly embrace patient-centered care provision based on assessable resources. Whether or not hospitals provide chaplaincy services, a non-billable and non-revenue generating service, may embody one strategy of adaptation toward patient-centered service provision. This analysis aimed to explore what institutional factors and environmental factors arose as significant predictors of hospital provision of chaplaincy services. Analysis suggested that more institutional than

environmental factors influenced the service provision, but that the provision of chaplaincy services may only exist as a service strategy within areas with more munificent resources.

Environmental factors influence organizational strategy, however, the present research suggests that institutional mechanisms may more frequently influence the inclusion of a chaplaincy department as a strategy for patient-centered care. This aligns with previous research which has demonstrated a link between service mix strategy and institutional factors (Baltosky, 2005). Further, some researchers identified that administrators more prominently rely on a hospital's mission and values to make chaplaincy staffing decisions (Antione et al., 2021). Although these findings coincide with existing research, they highlight the various influential factors in how hospitals attempt to provide patient-centered care. Approximately one-third of the problems causing hospitals to fail at providing patient-centered care are attributable to absent communication, failure to listen, and disrespecting patient rights (Gillespie & Reader, 2018) that ultimately impact patient outcomes. Organizations operating with greater access to resources provide more culturally competent care (Weech-Maldoado, Al-Amin, Nishimi, & Salam; 2011; AbuDagga, Weech-Maldonado, & Tian, 2018). A lack of regulatory pressure on hospitals to provide a service that improves team coordination and communication and that most of the pressure comes from mimetic factors, suggests needed attention at the policy level.

When identifying and examining factors that may influence hospitals' service structure as determined by IT and RDT, the present study reported the lack of regulatory (or coercive) mechanisms to legitimize hospital spiritual care. Potentially as high as 80%

of hospitals are providing these services without common standards or guidelines. Since researchers have already identified that variations in spiritual care could impact healthcare costs and outcomes (Balboni et al., 2013; Berning et al., 2016; Flannelly et al., 2012), the lack of guidelines for hospitals reinforces existing disparities that result in disproportionately impacting marginalized and low-income populations. Healthcare administrators could ensure high-quality care by employing board certified chaplains and staffing chaplaincy departments based on hospital daily census metrics.

Hospitals with greater resources are often found in more munificent environments and employ a more flexible service strategy (Zinn, Mor, Castle, Intrator & Brannon, 1999). The subsample analysis highlighted that a difference exists, environmentally and institutionally, for hospitals that could add or may have lost a chaplaincy department. Critical access hospitals appear less stable in the provision of chaplaincy care as a large proportion both gained and lost departments. Hospitals in areas with lower per capita income were also more likely to gain or lose a department than those in areas that always or never had one. Further, these areas were not urban. The challenges with healthcare access in rural areas is well documented (Douthit, Kiv, Dwolatzky & Biswas, 2019). The present case suggests the provision of chaplaincy care is no different. As policymakers create avenues to expand and prioritize patient-centered care, whether by telehealth capabilities or through community health centers, they must expand their scope to include the provision of spiritual care.

Limitations

Although this paper is the first to examine a service line provision according to two theoretical frameworks, it comes with a few limitations. First, the endogeneity of the

explanatory variables is worth noting. Although the AHA survey captures whether a hospital reports a chaplaincy department, no standard across hospitals exists to define that workforce. Most chaplains report being board certified, but the existing data does not differentiate between those certified and non-certified. Such differences in workforce training could influence pertinent outcomes. Second, the inconsistent participation by hospitals in the AHA survey limited the analysis. Finally, researchers have acknowledged that utilizing measures at the county level to examine hospital environment may lead to inadequate estimates. Environmental factors may more specifically identify hospital differences if measured at the health service area or hospital referral region area.

CONCLUSIONS

The implementation of patient-centered care practices, such as the inclusion of professional spiritual care providers, within hospitals depends on institutional and environmental factors. The present research identified that although no regulatory mechanisms exist to legitimize the provision of chaplaincy care within hospitals, institutional factors are predominately associated with this service strategy. Hospitals located in more munificent and urban environments are more likely to utilize chaplaincy services as part of a service mix. The same hospitals are more likely to gain departments if they previously never provided such services. The disparities between rural and urban health service provision extend to patient-centered care as indicated by a chaplaincy department.

Table 5. Descriptive Statistics of All Hospitals for Reporting Year, 2010, 2015, and 2019

		2010	2015	2019
	N	4,670	4,491	4,384
Survey Response Rate		3,843 (82.3)	3,724 (82.9)	3,335 (76.1)
Chaplaincy Department	No	977 (20.9)	822 (18.3)	673 (15.3)
	Yes	2,866 (61.4)	2,902 (64.6)	2,662 (60.7)
	Missing	827 (17.7)	767 (17.1)	1,049 (23.9)
Institutional Variables				
Acuity	Yes ICU	2,911 (75.7)	2,771 (74.4)	2,469 (74.0)
Church Relationship	None	3,984 (85.3)	3,791 (84.4)	3,723 (84.9)
	Catholic Church Op	573 (12.3)	592 (13.2)	554 (12.6)
	Other Church Op	113 (2.4)	108 (2.4)	107 (2.4)
Critical Access	Yes	1,307 (28.0)	1,316 (29.3)	1,343 (30.6)
ED Department	Yes	3,790 (81.2)	3,699 (82.4)	3,305 (75.4)
JC Accreditation	Yes	3,073 (65.8)	2,843 (63.3)	2,741 (62.5)
Ownership	NFP	2,740 (58.7)	2,702 (60.2)	2,726 (62.2)
	FP	782 (16.8)	729 (16.2)	641 (14.6)
	Gov't	1,148 (24.6)	1,060 (23.6)	979 (22.3)
Patient Mix	Percent Medicare Inpatient Days	0.50 (0.19)	0.51 (0.19)	0.52 (0.19)
Size	Staffed Beds – Mean (SD)	164.8 (189.6)	165.0 (200.2)	166.4 (212.4)
	Median [IQR]	99 [34, 225]	95 [28, 225]	92 [25, 222]
System Membership	Yes	2,644 (56.6)	2,862 (63.7)	2,924 (66.7)
Teaching Hospital	Yes	273 (5.8)	240 (5.3)	234 (5.3)
Trauma Level	Not Trauma Hospital	2,989 (64.0)	2,853 (63.5)	2,777 (63.3)
	Trauma (Level 1, 2 or Rural)	1,681 (36.0)	1,638 (36.5)	1,607 (36.7)
Environmental Variables				
Dynamism	Persons over 65 years old (per 100 people)	14.55 (4.01)	16.48 (4.31)	17.68 (4.49)
	Unemployment Rate (per 100 in workforce)	9.4 (2.8)	5.4 (1.7)	3.9 (1.3)
Munificence	Per Capita Income	37,374.0 (10,208.6)	44,880.5 (13,572.8)	49,290.4 (16,199.6)
	Urban Location	1,972 (42.2)	2,610 (58.1)	2,574 (58.7)
Complexity	Hospital beds per capita (per 100 people)	0.39 (0.39)	0.36 (0.43)	0.35 (0.44)
Medicaid Expansion State (Yes)		N/A	2,345 (52.2)	2,635 (60.1)
Controls				
Census Region	Midwest	1,386 (29.7)	1,347 (30.0)	1,323 (30.2)
	Northeast	576 (12.3)	545 (12.1)	524 (11.9)
	South	1,794 (38.4)	1,698 (37.8)	1,632 (37.2)
	West	914 (19.6)	901 (20.1)	906 (20.7)
Percent Medicaid Inpatient Days		0.19 (0.15)	0.19 (0.15)	0.19 (0.15)

Table 6. Hospital Characteristics by Chaplaincy Department in 2010, 2015, and 2019

		2010		2015		2019	
Chaplaincy Department		No	Yes	No	Yes	No	Yes
	N	977 (25.4)	2,866 (74.6)	822 (22.1)	2,902 (77.9)	673 (20.2)	2,662 (79.8)
Institutional Variables							
Acuity	ICU No	549 (56.2)	383 (13.4)	482 (58.6)	471 (16.2)	413 (61.4)	453 (17.0)
	ICU Yes	428 (43.8)	2,483 (86.6)	340 (41.4)	2,431 (83.8)	260 (38.6)	2,209 (83.0)
Church	None	944 (96.6)	2,297 (80.2)	784 (95.4)	2,319 (79.9)	651 (96.7)	2,145 (80.6)
Relationship	Catholic Church Op	28 (2.9)	471 (16.4)	32 (3.9)	488 (16.8)	19 (2.8)	433 (16.3)
	Other Church Op	5 (0.5)	98 (3.4)	6 (0.7)	95 (3.3)	3 (0.4)	84 (3.2)
Critical Access	Yes	543 (55.6)	512 (17.9)	483 (58.8)	577 (19.9)	436 (64.8)	528 (19.8)
ED Department	Yes	941 (96.3)	2,849 (99.4)	804 (97.8)	2,895 (99.8)	656 (97.5)	2,649 (99.5)
JC Accreditation	Yes	370 (37.9)	2,223 (77.6)	265 (32.2)	2,154 (74.2)	208 (30.9)	1,935 (72.7)
Ownership	NFP	375 (38.4)	2,002 (69.8)	323 (39.3)	2,065 (71.2)	288 (42.9)	1,968 (74.0)
	FP	206 (21.2)	339 (11.8)	155 (18.9)	349 (12.0)	119 (17.7)	266 (10.0)
	Gov't	396 (40.5)	525 (18.3)	344 (41.8)	488 (16.8)	265 (39.4)	424 (16.0)
Patient Mix	Percent Medicare Inpatient Days	0.50 (0.25)	0.51 (0.18)	0.51 (0.26)	0.52 (0.18)	0.52 (0.27)	0.53 (0.17)
Size	Staffed Beds – Mean (SD)	61.4 (67.8)	212.7 (214.2)	56.8 (62.5)	210.2 (225.8)	51.2 (59.3)	216.1 (245.1)
	Median [IQR]	34 [25, 78]	152 [60, 299]	30 [24, 69]	144 [53, 286]	25 [20, 64]	145 [49, 293]
System Membership	Yes	366 (37.5)	1,810 (63.2)	325 (39.5)	2,078 (71.6)	299 (44.4)	2,000 (75.1)
Teaching Hospital	Yes	5 (0.5)	251 (8.8)	2 (0.2)	227 (7.8)	0 (0)	220 (8.3)
Trauma Level	Not Trauma Hospital	656 (67.1)	1,506 (52.5)	495 (60.2)	1,591 (54.8)	370 (55.0)	1,358 (51.0)
	Trauma (Level 1, 2 or Rural)	321 (32.9)	1,360 (47.5)	327 (39.8)	1,311 (45.2)	3030 (45.0)	1,304 (49.0)
Environmental Variables							
Dynamism	Persons over 65 years old (per 100)	15.72 (4.05)	14.14 (3.81)	17.62 (4.24)	16.11 (4.15)	19.12 (4.62)	17.18 (4.23)
	Unemployment Rate (per 100 in workforce)	9.0 (3.3)	9.4 (2.6)	5.4 (2.0)	5.4 (1.6)	3.9 (1.4)	3.8 (1.1)
Munificence	Per Capita Income	34,202.0 (7,188.6)	38,461.3 (10,882.0)	41,234.0 (10,455.1)	46,233.7 (14,329.1)	44,567.1 (10,472.7)	51,058.9 (17,403.7)
	Urban Location	239 (24.5)	1,410 (49.2)	248 (30.2)	1,941 (66.9)	204 (20.3)	1,827 (68.6)

Complexity	Hospital beds per capita (per 100 people)	0.43 (0.49)	0.37 (0.34)	0.42 (0.52)	0.34 (0.42)	0.40 (0.33)	0.33 (0.45)
	Medicaid Expansion State (Yes)	N/A	N/A	317 (38.6)	1,642 (56.6)	296 (44.0)	1,658 (62.3)
Controls							
Census Region	Midwest	340 (34.8)	841 (29.3)	291 (35.4)	858 (29.6)	262 (38.9)	804 (30.2)
	Northeast	49 (5.0)	433 (15.1)	40 (4.9)	422 (14.5)	37 (5.5)	393 (14.8)
	South	425 (43.5)	1,100 (38.4)	333 (40.5)	1,075 (37.0)	263 (39.1)	953 (35.8)
	West	163 (16.7)	492 (17.2)	158 (19.2)	547 (18.9)	111 (16.5)	512 (19.2)
Percent Medicaid Inpatient Days		0.19 (0.21)	0.19 (0.15)	0.18 (0.19)	0.20 (0.14)	0.20 (0.16)	0.17 (0.20)

Table 7. Pooled Panel Logistic Regression of Predictors of Hospital Chaplaincy Department

		OR	95% CI
Institutional Variables			
Acuity	ICU Yes (vs. No)	1.33**	(1.07, 1.64)
Critical Access	Yes (vs. No)	0.84	(0.65, 1.08)
JC Accreditation	Yes (vs. No)	1.72**	(1.42, 2.07)
Ownership	For Profit (vs. NFP)	0.23**	(0.18, 0.29)
	Gov't/Public (vs. NFP)	0.59**	(0.48, 0.73)
Patient Mix	Percent Medicare Inpt Days	2.96**	(1.99, 4.40)
Size	(Ln) Staffed Beds	2.54**	(2.24, 2.89)
System Membership	Yes (vs. No)	1.93**	(1.62, 2.29)
Trauma Hospital	Trauma Hospital (vs. Not)	1.00	(0.86, 1.16)
Environmental Variables			
Dynamism	Persons 65 years and older (per 100)	1.01	(0.99, 1.04)
	(Ln) Unemployment Rate (per 100 in workforce)	0.97	(0.74, 1.27)
Munificence	(Ln) Per Capita Income	1.79*	(1.15, 2.80)
	Urban Location (vs. Rural)	1.30**	(1.08, 1.57)
Complexity	(Ln) Beds per capita	0.71**	(0.63, 0.81)
Medicaid Expansion State Yes (vs. No)		1.13	(0.95, 1.33)
Controls			
Region	Northeast (vs. Midwest)	1.11	(0.78, 1.57)
	South (vs. Midwest)	1.01	(0.82, 1.24)
	West (vs. Midwest)	1.11	(0.86, 1.44)
Percent Medicaid Inpatient Days		0.97	(0.89, 1.05)
Year		1.01	(0.98, 1.04)
Model Fit	N	30,175	
	Wald Chi Square	1,286(20), p <0.001	
	Clusters	4,293	
	Pseudo R^2	0.29	
	Correctly Classified	82.8%	

** p < 0.01, *p < 0.05

Table 8. Results of Hypothesized Variable Relationships

Hypothesis Number	Theory	Factor	Hypothesized Direction	Results
1	IT	JC Accreditation	+	Confirmed
2		At least 1 ICU	+	Confirmed
3		ED	+	Confirmed
4		Trauma Facility	+	Rejected
5		For Profit (vs. Non-profit)	-	Confirmed
6		Gov't Owned (vs. Non-profit)	-	Confirmed
7		System Member	+	Confirmed
8		Critical Access	-	Rejected
9		Larger Size	+	Confirmed
10		Proportion MCR Days	+	Confirmed
11		Teaching Hospitals	+	Confirmed
12		Church Owned	+	Confirmed
13a	RDT	Persons 65 years & Older	+	Rejected
13b		Unemployment Rate	NA	Confirmed
14a		Per Capita Income	+	Confirmed
14b		Urban	+	Confirmed
15a		Beds Per Capita	-	Confirmed
15b		Medicaid Expansion	NA	Confirmed

IT = Institutional Theory; RDT = Resource Dependency Theory; JC = Joint Commission; ICU = Intensive Care Unit; ED = Emergency Department; MCR = Medicare; NA = Not Associated

Table 9. Operational General Med/Surg Hospitals by Chaplaincy Department in 2010, 2015, and 2019, N = 2,334

		2010		2015		2019	
		No	Yes	No	Yes	No	Yes
	N	509 (21.8)	1,825 (78.2)	443 (19.0)	1,891 (81.0)	428 (18.3)	1,906 (81.7)
Institutional Factors							
Acuity	ICU No	281 (55.2)	208 (11.4)	263 (59.4)	276 (14.6)	271 (63.3)	301 (15.8)
	ICU Yes	228 (44.8)	1,617 (88.6)	180 (40.6)	1,615 (85.4)	157 (36.7)	1,605 (84.2)
Church Relationship	None	483 (94.9)	1,452 (79.6)	461 (93.9)	1,502 (79.4)	414 (96.7)	1,516 (79.5)
	Catholic Church Op	22 (4.3)	305 (16.7)	25 (5.6)	328 (17.4)	13 (3.0)	326 (17.1)
	Other Church Op	4 (0.8)	68 (3.7)	2 (0.5)	61 (3.2)	1 (0.2)	64 (3.4)
Critical Access Hospital	Yes	314 (61.7)	320 (17.5)	160 (36.1)	1,529 (80.9)	133 (31.1)	1,535 (80.5)
	No	195 (38.3)	1,505 (82.5)	283 (63.9)	362 (19.1)	295 (68.9)	371 (19.5)
ED Department	Yes	506 (99.4)	1,822 (99.8)	440 (99.3)	1,888 (99.8)	422 (98.6)	1,897 (99.5)
JC Accreditation	No	335 (65.8)	379 (20.8)	314 (70.9)	475 (25.1)	302 (70.6)	507 (26.6)
	Yes	174 (34.2)	1,446 (79.2)	129 (29.1)	1,416 (74.9)	126 (29.4)	1,399 (73.4)
Ownership	NFP	221 (43.4)	1,364 (74.7)	188 (42.4)	1,411 (74.6)	186 (43.5)	1,439 (75.5)
	FP	53 (10.4)	136 (7.5)	47 (10.6)	157 (8.3)	53 (12.4)	148 (7.8)
	Gov’t	235 (46.2)	325 (17.8)	208 (47.0)	323 (17.1)	189 (44.2)	319 (16.7)
Patient Mix	Percent Medicare Inpatient Days	0.52 (0.25)	0.51 (0.16)	0.52 (0.26)	0.53 (0.17)	0.53 (0.27)	0.53 (0.17)
Size	Staffed Beds – Mean (SD)	61.2 (71.1)	240.5 (236.4)	53.9 (59.7)	236.4 (250.9)	46.3 (52.1)	238.9 (265.9)

	Median [IQR]	30 [25, 78]	176 [70, 341]	25 [23, 68]	166 [58, 331]	25 [21, 55.5]	163 [53, 331]
System Membership	No	328 (64.4)	654 (35.8)	274 (61.9)	532 (28.1)	243 (56.8)	474 (24.9)
	Yes	181 (35.6)	1,171 (64.2)	169 (38.1)	1,359 (71.9)	185 (43.2)	1,432 (75.1)
Teaching Hospital	No	507 (99.6)	1,607 (88.1)	442 (99.8)	1,692 (89.5)	428 (100.0)	1,706 (89.5)
	Yes	2 (0.4)	218 (11.9)	1 (0.2)	199 (10.5)	0 (0)	200 (10.5)
Trauma Level	Not Trauma Hospital	276 (54.2)	845 (46.3)	210 (47.4)	920 (48.6)	207 (48.4)	876 (46.0)
	Trauma (Level 1, 2 or Rural)	233 (45.8)	980 (53.7)	233 (52.6)	971 (51.4)	221 (51.6)	1,030 (54.0)
Environmental Factors							
Dynamism	Persons Over 65 years old (per 100 people)	16.04 (4.00)	13.99 (3.73)	17.81 (4.20)	15.93 (3.97)	19.15 (4.46)	17.11 (4.08)
	Unemployment Rate (per 100 in workforce)	8.55 (3.00)	9.27 (2.51)	5.01 (1.78)	5.26 (1.49)	3.72 (1.35)	3.77 (1.08)
Munificence	Per Capita Income	34,151.27 (6,753.43)	38,744.69 (10,651.17)	41,056.28 (9,781.39)	46,189.39 (13,417.71)	44,405.72 (9,835.66)	50,840.48 (16,259.63)
	Urban Location	115 (22.6)	921 (50.5)	107 (24.2)	1,292 (68.3)	103 (24.1)	1,312 (68.8)
Complexity	Hospital beds per capita (per 100 people)	0.45 (0.55)	0.36 (0.35)	0.45 (0.61)	0.35 (0.47)	0.43 (0.59)	0.33 (0.49)
State	Medicaid Expansion	N/A	N/A	148 (33.4)	1,042 (55.1)	171 (39.9)	1,154 (60.6)
Census Region	Midwest	227 (44.6)	602 (33.0)	200 (45.1)	629 (33.3)	198 (46.3)	631 (33.1)
	Northeast	19 (3.7)	273 (15.0)	16 (3.6)	276 (14.6)	18 (4.2)	274 (14.4)
	South	211 (41.5)	641 (35.1)	180 (40.6)	672 (35.5)	167 (39.0)	685 (35.9)
	West	52 (10.2)	309 (16.9)	47 (10.6)	314 (16.6)	45 (10.5)	316 (16.6)
Percent Medicaid Inpatient Days		0.19 (0.21)	0.19 (0.14)	0.18 (0.20)	0.20 (0.14)	0.16 (0.19)	0.20 (0.13)

Table 10. 2010 Characteristics of Hospitals that Gained versus Never Reported Chaplaincy Department from 2010 - 2019 (2,340 Hospitals)

		Never Had Chaplaincy Dept N (Percent)	Gained Chaplaincy Dept N (Percent)	Bivariate Analysis
	N (Percent of 2,340)	290 (12.4)	172 (7.4)	
Institutional Factors				
Acuity	ICU Yes	111 (38.3)	97 (56.4)	14.32, p<0.001
Church Relationship	None Catholic Church Op Other Church Op	280 (96.6) 10 (3.5) 0 (0)	159 (92.4) 9 (5.2) 4 (2.3)	7.77, p = 0.02
Critical Access	Yes	198 (68.3)	85 (49.4)	16.18, p<0.001
ED Department	Yes	287 (99.0)	172 (100.0)	1.19, p = 0.18
JC Accreditation	Yes	71 (24.5)	85 (49.4)	30.02, p <0.001
Ownership	NFP FP Gov't	99 (34.1) 31 (10.7) 160 (55.2)	94 (54.6) 18 (10.5) 60 (34.8)	20.21, p< 0.001
Patient Mix	Percent Medicare Inpatient Days	0.52 (0.27)	0.51 (0.23)	T = 0.39 p =0.70
Size	Staffed Beds – Mean (SD)	45.8 (36.8)	88.6 (101.1)	-6.52, p < 0.001
	Median [IQR]	25 [23, 65]	45.5 [25, 124]	20.12, p < 0.001
System Membership	Yes	86 (29.7)	76 (44.2)	10.01, p < 0.001
Teaching Hospital	Yes	0 (0)	2 (1.2)	3.39, p = 0.07
Trauma Level	Not Trauma Hospital	156 (53.8)	106 (61.6)	2.70, p = 0.10
	Trauma (Level 1, 2 or Rural)	134 (46.2)	66 (38.4)	
Environmental Factors				
Dynamism	Persons 65 years or older (per 100 persons)	16.54 (4.14)	15.34 (3.60)	3.16, p = 0.002
	Unemployment Rate (per 100 in workforce)	7.97 (2.98)	9.41 (2.91)	-5.04, p < 0.001
Munificence	Per Capita Income	34,460.82 (6,664.40)	33,747.54 (7,276.43)	1.07 p = 0.28

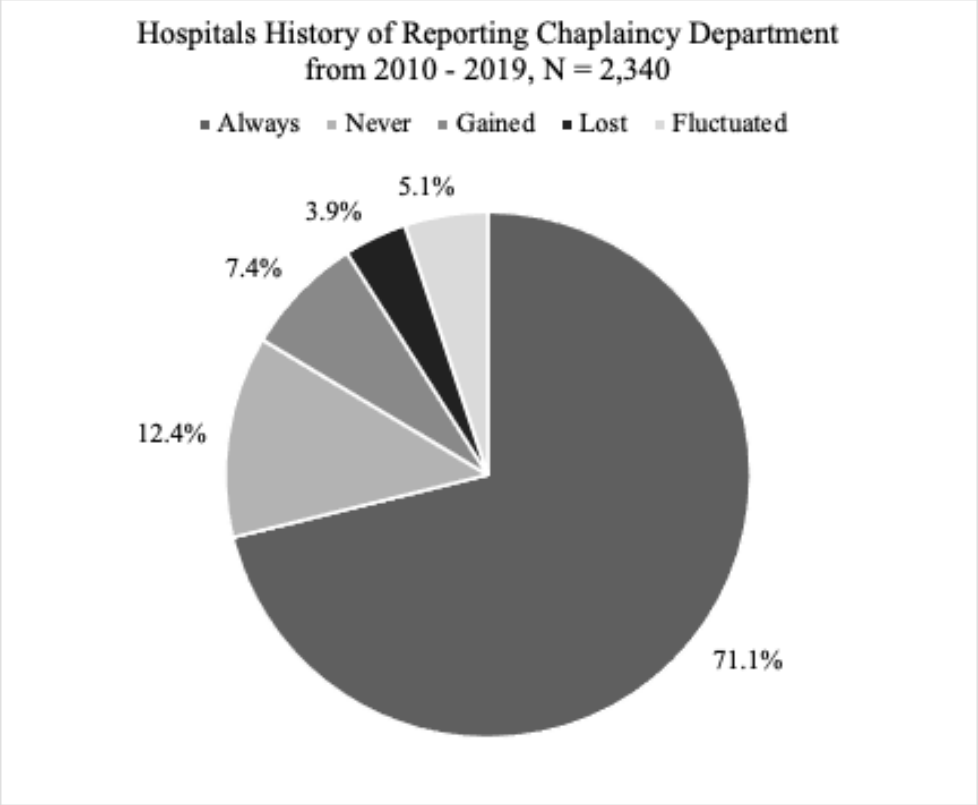
	Urban Location	52 (17.9)	51 (29.7)	8.56, p = 0.003
Complexity	Hospital beds per capita (per 100 people)	0.53 (0.66)	0.35 (0.35)	3.23, p = 0.001
Controls				
Census Region	Midwest Northeast South West	122 (42.1) 9 (3.1) 130 (44.8) 29 (10.0)	77 (44.8) 10 (5.8) 65 (37.8) 20 (11.6)	3.64, p = 0.30
Percent Medicaid Inpatient Days		0.19 (0.22)	0.21 (0.21	-0.68, p = 0.50

Table 11. 2010 Characteristics of Hospitals that Always Reported versus Lost a Chaplaincy Department from 2010 - 2019 (2,340 Hospitals)

		Always Had Chaplaincy Dept N (Percent)	Lost Chaplaincy Dept N (Percent)	Bivariate Analysis
	N (Percent of 2,340)	1,663 (71.1)	91 (3.9)	
Institutional Factors				
Acuity	ICU Yes	1,505 (90.5)	56 (61.5)	73.90, p <0.001
Church Relationship	None Catholic Church Op Other Church Op	1,313 (79.0) 283 (17.0) 67 (4.0)	84 (92.3) 7 (7.8) 0 (0)	10.14, p = 0.006
Critical Access	Yes	242 (14.6)	56 (51.5)	135.06, p < 0.001
ED Department	Yes	1,661 (99.9)	91 (100.0)	0.11, p = 0.74
JCAHO Accreditation	Yes	1,347 (81.0)	52 (57.1)	30.42, p < 0.001
Ownership	NFP FP Gov't	1,265 (76.1) 115 (6.9) 283 (17.2)	50 (54.9) 14 (15.4) 27 (29.7)	21.36, p < 0.001
Patient Mix	Percent Medicare Inpatient Days	0.50 (0.16)	0.52 (0.22)	-0.66, p = 0.51
Size	Staffed Beds – Mean (SD)	254.92 (240.50)	73.69 (94.80)	7.16, p < 0.001
	Median [IQR]	192 [81, 354]	34 [25, 95]	98.42, p < 0.001
System Membership	Yes	1,077 (64.8)	51 (56.0)	2.86, p = 0.09
Teaching Hospital	Yes	216 (13.0)	0 (0)	13.48, p < 0.001
Trauma Level	Not Trauma Hospital	760 (45.7)	51 (56.0)	3.71, p = 0.05
	Trauma (Level 1, 2 or Rural)	903 (54.3)	40 (44.0)	
Environmental Factors				
Dynamism	Persons 65 years or older (per 100 persons)	13.83 (3.67)	16.00 (4.39)	-5.43, p < 0.001
	Unemployment Rate (per 100 in workforce)	9.32 (2.48)	8.50 (2.98)	3.03, p = 0.003
Munificence	Per Capita Income	39,153.61 (10,879.54)	34,516.17 (6,670.41)	4.00, p< 0.001
	Urban Location	872 (52.4)	20 (22.0)	32.02, p <0.001

Complexity	Hospital beds per capita (per 100 people)	0.36 (0.33)	0.39 (0.57)	-0.71, p = 0.48
Controls				
Census Region	Midwest	519 (31.2)	48 (52.8)	18.74, p <0.001
	Northeast	262 (15.8)	9 (9.9)	
	South	597 (35.9)	21 (23.1)	
	West	285 (17.1)	13 (14.3)	
Percent Medicaid Inpatient Days		0.19 (0.13)	0.21 (0.20)	-1.31, p = 0.19

Figure 2. Hospitals' history of reporting a chaplaincy department, 2010 - 2019



CHAPTER 3: THE IMPACT OF CHAPLAINCY DEPARTMENTS ON HOSPITAL PATIENT EXPERIENCE SCORES

OVERVIEW

GOAL: To explore how patient experience scores differ between hospitals with and without chaplaincy departments.

METHODS: The present study analyzed data from the American Hospital Association Annual Survey, the Area Health Resource File, and Hospital Compare for adult medical/surgical hospitals between 2015 and 2019. Guided by Contingency Theory, the study controlled for environmental and organizational factors associated with satisfaction. The analysis examined two dependent variables: the percent of respondents rating a hospital a 9 or 10 (out of 10) for their global hospital experience score and the percent of respondents who would "definitely" recommend the hospital. Multivariate analyses were stratified according to hospital size and the ordinary least squares regression models controlled for the year and clustering at the hospital level.

PRINCIPAL FINDINGS: Bivariate analyses suggested that medium size hospitals had more respondents rating the global satisfaction item higher when reporting a chaplaincy department. Medium and large hospitals also had more respondents rating the global satisfaction item high and who would definitely recommend the hospital when reporting a chaplaincy department. Multivariate modeling shows that medium sized hospitals had 2% more respondents highly satisfied when in a hospital with a chaplaincy department and 3% more respondents likely to recommend the hospital with access to a

chaplaincy department while controlling for influential organizational and environmental factors.

PRACTICAL APPLICATIONS: Hospital administrators need to be more intentionally aware and attend to the provision of spiritual care within their hospitals. The variation in impact according to size may arise from the influence of staffing levels as compared to patient loads in large or small hospitals. Engagement with chaplaincy staff may also provide administrators with greater guidance on the mechanism by which chaplaincy influences hospital satisfaction scores.

THE IMPACT OF CHAPLAINCY DEPARTMENTS ON HOSPITAL PATIENT EXPERIENCE SCORES

INTRODUCTION

Healthcare service provision has shifted immensely over the past ten years and in ways that further place the care-seeker at the center of the care provided. The passage of the Affordable Care Act (ACA) in 2010 challenged payers and providers to focus on the care-seeker through changes in payment structures. Specifically, providers would receive payments not only based on services, but also on the value and experience reported by those receiving the care (Aroh, Colella, Douglas, & Eddings, 2015). In this way, policymakers could help reign in healthcare spending and ultimately improve patient experience. Most frequently, patient experience has been measured with patient satisfaction scores from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey (Giordano, Elliott, Goldstein, Lehrman, & Spencer, 2010). These scores influence the reimbursement for healthcare services and emphasize the focus on patient experience and needs.

These policy changes have led researchers to explore how the activities of high performing hospitals, that is hospitals with higher patient satisfaction scores, differ from those with lower performance scores. For example, some hospitals have integrated innovative technology for room cleaning that ultimately improved perceptions of cleanliness, staff responsiveness, and overall experience ratings (Fornwalt & Riddell, 2014). Other hospitals utilized music therapists to aid in pain relief and observed increases in patients' likelihood of recommending a hospital (Mandel, Davis, & Secic,

2014). Researchers also suggested that high performing hospitals tend to implement hospital-wide and unit-based interventions that include nursing/leadership rounding and multidisciplinary rounding to improve patient-level encounters (Aboumatar et al., 2015). Policymakers and researchers acknowledge that improving the quality of care requires identifying effect service strategies that provide the care desired and prioritized by patients.

Researchers, when studying the differences in satisfaction from one individual patient to the next, report higher satisfaction scores among hospitalized individuals who received chaplaincy care compared to individuals who did not (VandeCreek, 2004; Marin et al., 2015). Studies conducted at the individual level further suggest that those who have religious/spiritual concerns addressed during a hospitalization are 60% more likely to report "excellent" care (Williams et al., 2011). However, the impact of spiritual care on satisfaction scores across multiple hospitals remains unknown. A number of factors influence whether or not a hospital can provide spiritual care services, for which hospitals do not bill. Both organizational and environmental factors influence a hospital's provision of spiritual care services and thus their performance and survival (White, Jennings, Karimi, Johnson & Fitchett, 2021). Larger hospitals with non-revenue focused institutional priorities and greater financial resources are more likely to provide spiritual care as part of patient-centered care (White et al., 2021). Thus, the present study contributes to the literature by exploring trends in satisfaction at the organizational level rather than individual level; it seeks to find out *how hospitals that use chaplaincy departments as an organizational strategy for patient-centered care differ in patient satisfaction than hospitals that do not use chaplaincy departments*.

CONCEPTUAL FRAMEWORK

Contingency Theory (CT) suggests that an organization's performance occurs as a result of its organizational structure and its wider environment. More specifically, the structure of a hospital depends on its technological abilities which are contingent on environmental factors (Scott & Davis, 2007). Technological abilities include a hospital's physical capabilities alongside its caregiving processes that ultimately become the provision of health services (Hulin & Roznoski, 1985). For hospitals, the technological process of care delivery depends on hospital size, the clinicians (such as professional chaplains) involved in care delivery, and other informal dynamics (Kaissi, 2006). For instance, hospitals with greater satisfaction are traditionally non-profit, members of systems, and have lower proportion of Medicaid patients (Mazurenko, Collum, Ferdinand, & Menachemi, 2017). The environmental contingencies that influence ~~on~~ hospital performance include levels of uncertainty, resource munificence, and hospital competition (Kaissi, 2006). Urban location, a lower proportion of individuals over 65 years old, and per capita income are environmental factors that show an inverse association with hospital satisfaction (Mazurenko et al., 2017). Organizations consistently adjust their strategies, as contingent on technological abilities and the environment. To achieve top performance, a hospital seeks to establish the best fit between the environment and the organizational structure (Zinn, Brannon, Mor & Barry, 2003).

The existing research about how chaplains may influence patient experience is primarily positive. Small, single-center studies identify a positive association between receipt of chaplaincy care and overall experiences caring for a loved one who died in an intensive care unit (Johnson et al., 2014). Patients who receive spiritual care from a

chaplain report overall higher rates of satisfaction with their hospital experiences than those who do not (Iler, Obenshain, & Camac, 2001; Marin et al., 2015). Those studies further suggested that patients receiving chaplaincy care rated their likelihood to recommend the hospital higher as well (Iler et al., 2001; Marin et al., 2015). Further, much of the work undertaken by chaplains includes providing emotional care for patients and families as well as guidance in navigating medical communications (Massey et al., 2015; Idler et al., 2015). Chaplains conduct spiritual assessments to evaluate the potential level of spiritual distress for a hospitalized person and to explore how one's spiritual framework may impact their healthcare plan (Fitchett, 2017). Thus, for the exploration of the performance differences at the hospital-level of observation, we hypothesize the following:

H1. Hospitals reporting a chaplaincy department will have a higher percent of respondents rating the global satisfaction item a 9 or 10 than hospitals not reporting a chaplaincy department.

H2. Hospitals reporting a chaplaincy department will have a higher percent of respondents who would definitely recommend the hospital than those not reporting a chaplaincy department.

Although most studies have suggested that smaller hospitals tend to have higher satisfaction rates (Elliott et al., 2010b; Ford et al 2013; Jha et al., 2008; McFraland, Ornstein & Holcome, 2015; Lehman et al., 2010), other research suggests that this relationship is mitigated with the inclusion of process quality measures (Tajeu et al., 2015). Further, recent research suggests a complex relationship between size and response rate such that satisfaction scores may need to be explored among size (staffed

beds) groupings (Rodriguez-Homs, Hammill, Ryser, Phillips, & Mosca, 2020). Since the literature suggests larger hospitals tend to report lower satisfaction scores and larger hospitals more frequently have chaplaincy departments (White et al., 2021), we hypothesized:

H3. Hospitals reporting a chaplaincy department will differ in satisfaction scores by size of the hospital.

METHODS

Data Selection and Sample

Data from the American Hospital Association's (AHA) Annual Survey was combined with the Area Health Resource File (AHRF), and the Center's for Medicare and Medicaid Services' (CMS) publicly available database, Hospital Compare. Hospital-level observations within the AHA were matched to environmental characteristics within the AHRF at the county-level. Then, each hospital was matched with its Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores by their Medicare Provider identification number (see Figure 3). The Institutional Review Board at the University of Louisville deemed the present study exempt.

Observations represented hospitals present in the AHA dataset from 2015 to 2019. Analysis began with 2015 since Hospital Compare adjusted public reporting for easier interpretation through star ratings. Sample identification included removal of hospitals located in U.S. territories, Veteran's Administration hospitals were removed due to historical requirement to employ a chaplaincy department, and federal hospitals. Other federal hospitals and critical access hospitals often face unique financial and workforce

challenges (Boakye et al., 2019; Rosko & Mutter, 2010), and thus were also removed from the analysis.

Dependent Variables

The present analysis examined two dependent variables: *global hospital experience rating* and *definitely would recommend* the hospital. The *global hospital experience rating* referred to the percent of respondents who gave the hospital a 9 or 10, on a scale from 0 to 10, for the single question that asked about one's "overall hospital experience." While individual respondents can rate the hospital on a scale from 1 (worst) to 10 (best), the Center for Medicare and Medicaid Services (CMS) reports aggregated results in terms of the percent of respondents who ranked the hospital from 0 to 6, a 7 or 8, and 9 or 10. The *likelihood to recommend* referred to the percent of respondents who reported they would "definitely recommend" the hospital. Respondents can choose on this individual question from "definitely yes", "probably yes", "probably no", and "definitely no". HCAHPS scores on CMS's Hospital Compare are adjusted for patient mix and survey mode before public reporting (Centers for Medicare & Medicaid Services, 2019). Patient mix adjustments included weighting hospital-level scores based on patient education, age, primary language, gender, hospital service line, survey mode, and self-rated health (Centers for Medicare & Medicaid Services, 2019). In 2019, the survey adjustment also included self-rated mental health. Finally, yearly scores are compiled from the quarterly scores and include adjustments for each quarter's eligible discharges. For further details, see HCHAPS Technical Notes at hcahpsonline.org.

Independent Variables

Variable of interest. The analysis primarily sought to determine if the outcome scores described above differed between hospitals with and without a chaplaincy department. Hospitals that respond to the AHA annual survey report whether they have a chaplaincy department at the 1) hospital level, 2) system level, or through a 3) joint venture. These variables were recoded into one dichotomous variable; if a hospital said yes to any of these three it was coded as 1 and 0 if no.

Organizational variables. Modeling controlled for organizational characteristics associated with hospitals' satisfaction rates (Mazurenko et al., 2017). These included ownership type (non-profit, for-profit, government/public), the percent Medicaid inpatient days, whether or not it belonged to a health system, whether it was a Member of the Council of Teaching Hospital (COTH) of the Association of American Medical Colleges, and the number of staffed beds (Mazurenko et al., 2017).

Environmental variables. A hospital's environmental context also influences their service strategies. Previous research has identified a number of market-level factors associated with satisfaction rates (Mazurenko et al., 2017). For environmental factors, the analysis included the number of persons over 65 years old (per 100 in the population), the unemployment rate (per 100 in the civilian workforce), the per capita income, and whether or not the hospital was located in an urban setting.

***Controls*.** Finally, the analysis controlled for the census region in which the hospital was located since religiosity may vary by U.S. region. Analysis also controlled for the year the survey data represented.

Analysis

The process of combining datasets and observations is detailed in Figure 3. After dataset creation, descriptive statistics were examined by year. The independent variable of interest had considerable missing values; whether or not the hospital had a chaplaincy department was missing in 18.1% of observations (2,708). Analysis began by carrying forward one year of reporting whether or not a hospital had a chaplaincy department when missing (Rogers, Meier, Morrison, Moreno, & Aldridge, 2021). This decreased the missingness for chaplaincy by 7.8% (1,176).

Previous literature suggests that hospital size is associated with both satisfaction (Rodriguez-Homs et al., 2020) and reporting a chaplaincy department (White et al., 2021). The grouping of the number of staffed beds used in this project followed that of previous research (Diana, Zhang, Yeager, Stoecker, & Counts 2019); small hospitals refer to those with fewer than 125 staffed beds, medium hospitals have 125 to 399 staffed beds, and large hospitals were those with greater than or equal to 400 beds. The potential effect modification was checked with both dependent variables through a two-way ANOVA (Table 12). The analysis was conducted with ordinary least squared regression models that controlled for clustering at the hospital level. Clustering at the hospital level allows for one to control for autocorrelation of observations within a hospital over time (Cameron & Miller, 2015; Hansen, 2007; Stock & Watson, 2008). Each regression model was examined for diagnostic criteria and model fit. More specifically, each regression model was assessed for normality, linearity, the influence of outliers, and multicollinearity. Extreme outliers were identified with the IQR program (Hamilton, 1992) and removed for each model. Stata SE 16.1 was used for analysis.

RESULTS

The present study examined the characteristics of 15,040 observations for 3,128 unique hospitals over 5 years (unbalanced dataset). The results of the ANOVA demonstrated an effect modification between size and reporting a chaplaincy department (Table 12), thus warranting a stratified analysis. The examination of descriptive statistics (Table 13) showed that most hospitals reported between 125 – 399 staffed beds during the observed years. Between 2015 and 2019, the percent of hospitals reporting a chaplaincy department increased from 75.2% (n = 2,293) to 82.6% (n = 2,422). The number of non-profit hospitals ranged from 64% to 65% and between 71% and 75% were members of health systems. Approximately 8%, each year, identified as a member of the Council of Teaching Hospitals. The counties in which the hospitals were located averaged approximately 16 persons aged 65 years and older per 100 in the population, had an unemployment rate around 4.5 persons per 100 in the civilian workforce, and were located in urban areas. The highest proportion of hospitals each year were located in the southern census region (41.9% to 42.6%). For smaller (<125 beds) hospitals, 71.5% of their respondents gave high overall satisfaction and 69.9% reported they would definitely recommend them. Medium hospitals (125 – 399 beds) had 69.2% of respondents with high overall satisfaction and 69.5% who would definitely recommend the hospital. Large hospitals (≥ 400 beds) had 71% of respondents who had high overall satisfaction and approximately 73% who would definitely recommend them.

Chaplaincy Departments and Satisfaction

Table 14 captures characteristics of hospitals by whether or not they reported a chaplaincy department. Most with a chaplaincy department identified as non-profit, were

a part of a hospital system, and were not teaching hospitals. Further, most hospitals with chaplaincy departments were medium sized while most without were small. The counties of hospitals with chaplaincy departments typically had fewer persons over 65 years old (than the counties of hospitals without departments), lower unemployment rates, and higher per capita income.

Bivariate analyses (Table 15) and multivariate regression models for hospital global satisfaction rating (Table 16) revealed that medium sized hospitals with chaplaincy departments had 1.9% (SE = 0.73) more respondents ranking their experience as a 9 or 10 than hospitals without a chaplaincy department. The difference in satisfaction scores between hospitals reporting a chaplaincy department and those that did not, remained insignificant for small and large hospitals. In terms of the likelihood to recommend a hospital (Table 17), medium sized hospitals with chaplaincy departments had 2.98% (SE = 0.82) more respondents who said they would definitely recommend the hospital compared to those without a department. The association did not appear for small or large hospitals.

Organizational Factors and Satisfaction

A number of organizational factors were associated with satisfaction regardless of size. Specifically, hospitals that operated as for profit had a lower percent of individuals rating it as a 9 or 10 for their global rating and teaching hospitals consistently had a positive association with the percent of respondents giving the global hospital rating a 9 or 10. Those two variables also had the same directional association with the percent of respondents who would definitely recommend the hospital. Meaning, for profit hospitals

had lower proportion of respondents who would definitely recommend them and being a teaching hospital had a positive association with likelihood to recommend.

The percent of Medicaid inpatient days influenced the global hospital rating dependent on size but was associated with percent of respondents who would definitely recommend a hospital regardless of size. The fewer Medicaid inpatient days the more respondents reported a high global rating in medium (β= -3.05, SE = 0.30) and large hospitals (β= -5.32, SE = 0.54), but not small hospitals. As the proportion of Medicaid inpatient days decreased the percent of respondents who would definitely recommend a hospital increased, regardless of size.

Two other organizational factors influenced hospital satisfaction scores dependent on size. Participating in a health system had a positive association with the global hospital rating when a hospital had more than or equal to 400 staffed beds (β= 1.83, SE = 0.65), but not for small or medium hospitals. In terms of the percent of respondents who would definitely recommend a hospital, public hospitals had fewer favorable respondents when operating with less than 125 staffed beds (β= -1.56, SE = 0.67). System membership also held a positive association for the precent of respondents that would definitely recommend a hospital if it was large (β= 2.04, SE = 0.70).

Environmental Factors and Satisfaction

When examining the association among the environmental factors and satisfaction, only one factor retained an association with satisfaction regardless of size. For both the global hospital rating and the likelihood to recommend, the lower the unemployment rate in the hospital's county then the higher the percent of satisfied respondents. The size of the hospital did not influence this association.

The association between satisfaction and three environmental factors depended on the hospital size. In terms of global hospital rating, an inverse association was found with the number of persons 65 years and older (per 100 in the population) for medium (β = -2.34, SE = 0.80) and large (β = -3.11, SE = 1.48) hospitals. This same measure had an inverse association with the percent of respondents who would definitely recommend for medium (β = -2.05, SE = 0.89) hospitals. Second, a county's per capita income had an inverse association with the global hospital rating for large hospitals (β = -2.70, SE = 1.11) and a positive association for likelihood to recommend in small hospitals (β = 2.37, SE = 1.24). Finally, hospitals in urban settings had more respondents who would definitely recommend the hospital if they were small (β = 2.69, SE = 0.55) or medium (β = 2.21, SE = 0.61).

DISCUSSION

The past decade of changing healthcare policy has required points of healthcare delivery to more intentionally integrate efforts that put the patient at the center of care. Payers and providers more frequently use patient experience scores, collected via HCAHPS surveys, to determine value-based reimbursements and hospital performance. Although the proportion of hospitals with chaplaincy departments has increased over the past decade (White et al., 2021) and how healthcare administrators understand the role of chaplaincy departments has expanded to include staff care (Antione et al., 2021), the impact of these departments on performance metrics remains understudied. The present study, guided by Contingency Theory, examined how using a chaplaincy department as an organizational strategy impacted patient satisfaction. More specifically, the study examined how patient satisfaction scores differed between hospitals with and without

chaplaincy services. The results suggested that having a chaplaincy department was associated with higher levels of satisfaction for both the global satisfaction rating and the proportion of respondents who would definitely recommend the hospital, but only in medium sized hospitals.

The analysis identified several predictors of hospitals' global satisfaction scores also previously identified in published research. For instance, researchers reported higher satisfaction rates among small hospitals (Elliott et al., 2010b; Ford et al., 2013; Jha et al., 2008) and the present study did as well. Smaller hospitals may serve populations with less acute health needs and allow for greater time in clinician-to-patient encounters (McFarland, Ornstein & Holcombe, 2015). The baseline for satisfaction may be greater in smaller hospitals because they are able to focus on organizational culture (Chatfield, 2016) and attend to local community needs such that the provision of spiritual care cannot add anything further to patient experience. Large hospitals with greater patient demand, on the other hand, may vary in clinician staffing or face a less personalized caregiving environment (McFarland et al., 2015). Further, the present study confirmed previous discussions about environmental factors such as the inverse association between unemployment rates and satisfaction scores (Kazley et al., 2015; McFarland et al., 2015) regardless of size. Less consistently, the modeling identified associations between income, the number of persons 65 years and older, urban location, and satisfaction. Future research may need to examine satisfaction more intentionally with organizational and environmental characteristics stratified by size.

The present study, the first to examine the association between patient satisfaction and chaplaincy at the organizational level, reinforced results identified at the individual

level. Marin and colleagues (2015) reported that individuals who received chaplaincy care when hospitalized also reported higher overall satisfaction and likelihood to recommend the hospital. The results presented here also parallel results that suggest hospitals with multiple staff-care resources receive better satisfaction scores. Specifically, one study reported that hospitals with high levels of compassion activities (inclusive of spiritual care) to support employees have higher HCAHPS scores (McClelland & Vogus, 2014). Other researchers suggested that organizations with greater levels of cultural competency tend to perform better (Weech-Maldonado et al., 2012). This research adds to this literature by further extrapolating the connection in the provision of professional spiritual care for medium sized hospitals, however, it does not identify the mechanism of the impact on satisfaction. In other words, chaplaincy departments may help foster an inclusive and patient-centered environment, impact the cultural competency within the hospital, or care for staff in ways that end up impacting patient experience. Further, since hospitals located in more munificent environments are more likely to report a chaplaincy department (White et al., 2021), all of these strategies to improve patient-centered care could be a product of greater hospital resources.

The lack of standard staffing of chaplaincy departments and the limited information about the provision of hospital chaplaincy care in published literature makes the present study difficult to contextualize. The literature suggests that most chaplaincy department managers report to a hospital-level executive (Antione et al., 2020) and that hospitals that utilize chaplains prioritize employing board-certified chaplains for clinical coverage (Antoine et al., 2020). Administrators reported a preference for professional chaplains over community clergy because of 1) a higher quality of care, 2) a reliability in

caregiving, and 3) their ability to function in complex atmospheres (Antoine et al., 2020, p. 7). Professional chaplaincy departments within hospitals also detailed preferences for operating chaplaincy education programs (Clinical Pastoral Education – CPE) and providing 24/7 clinical coverage (Antoine et al., 2020). Further, administrators grounded the provision of their hospital's spiritual care within their organizational goals, values, and for emergent staff, patient, and family needs (Antione et al., 2020; Antoine et al., 2021). Future research needs to examine how chaplaincy staffing among small, medium, and large hospitals may vary to explore chaplains' impact in a more deliberate manner.

Limitations

A number of limitations exist for the present study. First, the endogeneity of hospital chaplaincy department characteristics limits interpretation. The influence of using board certified chaplains versus others remains unknown. Nor does the study capture how individual hospitals understand what it means to report a department. This study is unable to differentiate between variations in the level of chaplaincy care. Second, patient experience scores are greatly limited in their ability to capture a hospital's patient-centeredness. Previous research has identified the inequities and challenges inherent to using HCAHPS survey metrics in value-based purchasing (Elliott et al., 2012; Elliott et al., 2010a; Elliott et al., 2009). Finally, utilizing environmental metrics from the county level could inadequately estimate effects as compared to hospital referral region or service areas.

CONCLUSIONS

Medium-sized hospitals with chaplaincy departments had a higher proportion of individuals rank their global hospital experience high and a greater proportion who would

definitely recommend them than hospitals without a department. Practically, the present study suggests that administrators of medium sized hospitals need to be aware of the provision of spiritual care within their hospital. These services are impacting patients' experiences and warrant greater administrative support and awareness. For administrators of large hospitals, the impact of chaplaincy services on patients' experiences may depend on chaplaincy staffing levels. These administrators need to explore how their chaplaincy departments are able to engage with hospitalized persons based on current resources. The dynamic between service provision and experience in small hospitals requires a deeper examination of patients' preferences by hospital administrators. The small hospitals may face complex social and cultural dynamics due to geographical location that ultimately dilute the impact of chaplaincy departments. However, greater research is needed to explore that possibility.

The present study advances evidence that chaplaincy services influence metrics vital to hospital performance as well as justify the need for future research to examine chaplaincy staffing models among these hospitals. Future research may also need to evaluate the financial return that chaplaincy services may generate for hospitals benefiting from their integration. With such a high proportion of hospitals providing these services, organizations like the American Hospital Association, the Centers for Medicare and Medicaid Services, and the Health Resources and Services Administration may also want to consider expanding data collection, beyond dichotomous metrics, about hospital chaplaincy departments.

Table 12. Two-way ANOVAs of Global Hospital Ranking and Definitely Would Recommend, by Beds and Chaplaincy Department

	Sum of Squares	DF	Mean Square	F	Significance
Global Hospital Rating [a]					
Model	19,075.76	5	3,815.15	70.90	$p < 0.001$
Chaplaincy Department	781.11	1	781.11	14.52	$p < 0.001$
Beds	14,921.3	2	7,460	138.65	$p < 0.001$
Chaplaincy Department # Beds	3,736.61	2	1,868.31	34.72	$p < 0.001$
Residual	717,959.90	13,343	53.81		
Definitely Would Recommend [b]					
Model	32,654.88	5	6,530.98	90.68	$p < 0.001$
Chaplaincy Department	2,357.33	1	2,357.33	32.73	$p < 0.001$
Beds	6,103.64	2	3,051.82	42.37	$p < 0.001$
Chaplaincy Department # Beds	5,850.51	2	2,925.26	40.62	$p < 0.001$
Residual	961,008.29	13,343	72.02		

[a] Global Hospital Rating is the percent of respondents who gave the hospital a 9 or 10 on their overall hospital experience; [b] Definitely Would Recommend is the percent of respondents who reported that they would "definitely recommend" the hospital

Table 13. Descriptive statistics of hospitals N = 15,040 (3,128 unique hospitals)

		Small < 125 Beds	Medium 125 - 399 Beds	Large ≥ 400 Beds	Total
	N	5,869 (39.0)	6,939 (46.1)	2,232 (14.8)	15,040 (100.0)
Outcome Variables					
Global Hospital Rating [a]		71.52 (8.11)	69.16 (7.35)	71.07 (6.95)	70.35 (7.67)
Definitely Would Recommend [b]		69.87 (9.33)	69.53 (8.59)	73.22 (7.67)	70.22 (8.85)
Organizational Factors					
Chaplaincy Dept	No	1,194 (20.3)	385 (5.6)	23 (1.0)	1,602 (10.6)
	Yes	3,931 (67.0)	5,834 (84.1)	2,141 (95.9)	11,906 (79.2)
	Not Reported	744 (12.7)	720 (10.4)	68 (3.1)	1,532 (10.2)
Ownership	Non-Profit	3,383 (57.6)	4,763 (68.6)	1,658 (74.3)	9,804 (65.2)
	For Profit	1,414 (24.1)	1,479 (21.3)	204 (9.1)	3,097 (20.6)
	Public	1,072 (18.3)	697 (10.0)	370 (16.6)	2,139 (14.2)
Percent Medicaid Inpatient Days – Mean (SD)		0.17 (0.11)	0.22 (0.12)	0.25 (0.12)	0.21 (0.12)
System Member	No	2,067 (35.2)	1,462 (21.1)	469 (21.0)	3,998 (26.6)
	Yes	3,802 (64.8)	5,477 (78.9)	1,763 (79.0)	11,042 (73.4)
Teaching (Member of Council of Teaching Hospitals)	No	5,865 (99.9)	6,694 (96.5)	1,327 (59.4)	13,886 (92.3)
	Yes	4 (0.1)	245 (3.5)	905 940.6)	1,154 (7.7)
Environmental Factors					
Persons 65 years and Older (per 100 persons)		16.91 (3.97)	15.95 (3.94)	14.67 (3.06)	16.13 (3.91)
Unemployment Rate (per 100 in workforce)		4.74 (1.67)	4.57 (1.41)	4.43 (1.36)	4.62 (1.51)
Per Capita Income		44,333.24 (14,075.85)	51,282.76 (15,765.35)	55,666.57 (21,754.80)	49,215.83 (16,714.34)
Urban		3,041 (51.8)	6,001 (86.5)	2,202 (98.7)	11,244 (74.8)
Region	Midwest	1,400 (23.8)	1,578 (22.7)	491 (22.0)	3,469 (23.1)
	Northeast	581 (9.9)	1,265 (18.2)	454 (20.3)	2,300 (15.3)
	South	2,846 (48.5)	2,612 (37.6)	908 (40.7)	6,36 (42.3)
	West	1,042 (17.7)	1,484 (21.4)	379 (17.0)	2,905 (19.3)
Year	2015	1,190 (20.3)	1,415 (20.4)	446 (20.0)	3,051 (20.3)
	2016	1,194 (20.3)	1,397 (20.1)	440 (19.7)	3,031 (20.2)
	2017	1,192 (20.3)	1,389 (20.0)	453 (20.3)	3,034 (10.2)
	2018	1,163 (19.8)	1,380 (19.9)	449 (10.1)	2,992 (19.9)
	2019	1,130 (19.3)	1,358 (19.6)	444 (19.9)	2,932 (19.5)

[a] Global Hospital Rating is the percent of respondents who gave the hospital a 9 or 10 on their overall hospital experience; [b] Definitely Would Recommend is the percent of respondents who reported that they would "definitely recommend" the hospital

Table 14. Characteristics of Hospitals, 2015 – 2019 by Chaplaincy Department, N = 15,040 (3,128 unique hospitals)

		Chaplaincy Department	
		No	Yes
	N	1,602 (11.9)	11,906 (88.1)
Outcome Variables			
Global Hospital Rating [a]		70.19 (9.16)	70.75 (7.18)
Definitely Would Recommend [b]		68.24 (10.0)	70.92 (8.39)
Organizational Factors			
Ownership	Non-Profit	592 (36.9)	8,625 (72.4)
	For Profit	617 (38.5)	1,709 (14.3)
	Public	393 (24.5)	1,572 (13.2)
Percent Medicaid Inpatient Days (Mean, SD)		0.19 (0.15)	0.21 (0.12)
System Member	No	773 (48.3)	2,749 (23.1)
	Yes	829 (51.7)	9,157 (76.9)
Teaching (Member of Council of Teaching Hospitals)	No	1,595 (99.6)	10,782 (90.6)
	Yes	7 (0.4)	1,124 (9.4)
Staffed Beds	Small, < 125 Beds	1,194 (74.5)	3,931 (33.0)
	Medium, 125 - 399 Beds	385 (24.0)	5,834 (49.0)
	Large, ≥ 400 Beds	23 (1.4)	2,141 (18.0)
Environmental Factors			
Persons 65 years and Older (per 100 persons)		16.58 (4.04)	16.04 (3.83)
Unemployment Rate (per 100 in workforce)		4.94 (1.80)	4.52 (1.45)
Per Capita Income		43,108.57 (12,239.22)	50,261.60 (17,151.38)
Urban		752 (46.9)	9,836 (78.8)
Region	Midwest	306 (19.1)	2,921 (24.5)
	Northeast	111 (6.9)	1,957 (16.4)
	South	908 (56.7)	4,770 (40.1)
	West	277 (17.3)	2,258 (19.0)
Year	2015	323 (20.2)	2,293 (19.3)
	2016	346 (21.6)	2,344 (19.7)
	2017	333 (20.8)	2,409 (20.2)
	2018	306 (19.1)	2,438 (20.5)
	2019	294 (18.3)	2,422 (20.3)

[a] Global Hospital Rating is the percent of respondents who gave the hospital a 9 or 10 on their overall hospital experience; [b] Definitely Would Recommend is the percent of respondents who reported that they would "definitely recommend" the hospital

Table 15. Mean and Standard Deviation of Satisfaction by Hospital Size and Chaplaincy Department

Size	Small < 125 Beds			Medium 125 - 399 Beds			Large ≥ 400 Beds		
Chap Dept	No	Yes	Bivariate	No	Yes	Bivariate	No	Yes	Bivariate
Global Hospital Rating [a]	71.68 (9.07)	71.80 (7.36)	t = -0.47, p = 0.64	65.91 (8.23)	69.88 (7.09)	t = -10.45, p < 0.001	69.22 (5.47)	71.25 (6.77)	t = -1.43, p = 0.15
Definitely Would Recommend [b]	69.43 (10.23)	70.35 (8.65)	t = -2.98, p =0.003	64.67 (8.51)	70.38 (8.37)	t = -12.86, p < 0.001	69.43 (7.19)	73.44 (7.46)	t = -2.56, p = 0.01

[a] Global Hospital Rating is the percent of respondents who gave the hospital a 9 or 10 on their overall hospital experience; [b] Definitely Would Recommend is the percent of respondents who reported that they would "definitely recommend" the hospital

Table 16. Multivariate Regression Models for Predictors of Global Hospital Rating [a]

	Small < 125 Beds [b]		Medium 125 - 399 Beds [c]		Large ≥ 400 Beds [d]	
	B	SE	B	SE	B	SE
Organizational Factors						
Chaplaincy Department	-0.18	0.50	1.88**	0.73	-0.72	1.07
For Profit (vs. Non-Profit)	-2.63**	0.53	-4.35**	0.42	-4.53**	0.88
Public (vs. Non-Profit)	-1.02	0.58	-0.89	0.60	0.34	0.74
(Ln) Percent Medicaid Days	-1.89	0.26	-3.05**	0.30	-5.32**	0.54
System Member (vs. Not)	0.06	0.47	0.03	0.44	1.83**	0.65
Teaching Hospital (vs. Not)	6.69**	0.88	2.44*	1.02	2.14**	0.50
Environmental Factors						
(Ln) Persons 65yrs and Older (per 100)	0.80	0.90	-2.34**	0.80	-3.11*	1.48
(Ln) Unemployment Rate (per 100 in workforce)	-5.07**	0.74	-5.78**	0.67	-4.98**	1.02
(Ln) Income	0.71	1.12	-1.54	0.84	-2.70*	1.11
Urban (vs. Rural)	0.84	0.47	-0.23	0.51	-1.89	2.91
Controls						
Northeast (vs. Midwest)	-3.67**	0.75	-3.46**	0.54	-3.64**	0.84
South (vs. Midwest)	-0.54	0.47	-0.49	0.41	-0.05	0.65
West (vs. Midwest)	-1.75**	0.65	-0.20	0.49	1.73*	0.78
2016 (vs. 2015)	0.68**	0.19	0.28*	0.13	0.39*	0.20
2017 (vs. 2015)	0.66*	0.26	0.26	0.19	0.54	0.28
2018 (vs. 2015)	0.48	0.33	-0.13	0.25	0.36	0.38
2019 (vs. 2015)	-0.44	0.36	-1.26**	0.29	-0.57	0.46
N (Clusters)	4,915 (1,165)		6,185 (1,399)		2,139 (488)	
R-squared	0.1415		0.2228		0.3566	
F Statistic	F (17, 1164) = 27.78, p < 0.001		F (17, 1398) = 37.01, p < 0.001		F (17, 487) = 19.25, p < 0.001	

** p<0.01, * p<0.05

[a] Global Hospital Rating is the percent of respondents who gave the hospital a 9 or 10 on their overall hospital experience; [b] 8 extreme outliers removed; [c] 10 extreme outliers removed; [d] 13 extreme outliers removed

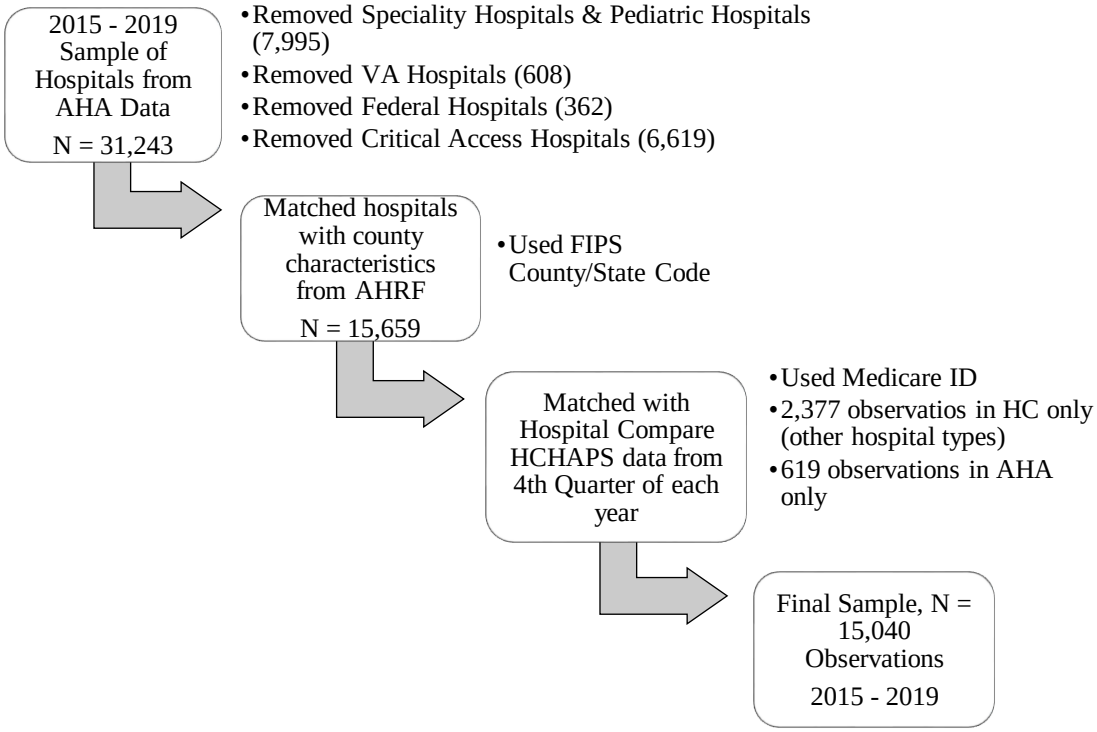
Table 17. Multivariate Regression Models for Predictors of Definitely Would Recommend [a]

	Small < 125 Beds [b]		Medium 125 - 399 Beds [c]		Large ≥ 400 Beds [d]	
	B	SE	B	SE	B	SE
Organizational Factors						
Chaplaincy Department	-0.13	0.59	2.98**	0.82	0.29	1.41
For Profit (vs. Non-Profit)	-3.75**	0.62	-5.08**	0.49	-5.22**	0.95
Public (vs. Non-Profit)	-1.56*	0.67	-1.36	0.70	0.30	0.76
(Ln) Percent Medicaid Days	-2.15**	0.30	-3.57**	0.35	-6.03**	0.59
System Member (vs. Not)	-0.01	0.55	0.04	0.50	2.04**	0.70
Teaching Hospital (vs. Not)	10.23**	2.04	3.56**	1.11	3.01**	0.56
Environmental Factors						
(Ln) Persons 65yrs and Older (per 100)	0.55	1.03	-2.05*	0.89	-2.35	1.54
(Ln) Unemployment Rate (per 100 in workforce)	-5.84**	0.92	-7.17**	0.76	-6.89**	1.11
(Ln) Income	2.37**	1.24	0.11	0.94	-2.19	1.22
Urban (vs. Rural)	2.69**	0.55	2.21**	0.61	1.04	3.10
Controls						
Northeast (vs. Midwest)	-2.28*	0.92	-2.74**	0.64	-2.26*	0.92
South (vs. Midwest)	0.59	0.54	0.67	0.50	0.62	0.73
West (vs. Midwest)	0.66	0.75	1.34	0.58*	2.94**	0.86
2016 (vs. 2015)	0.05	0.20	-0.38**	0.14	-0.29	0.19
2017 (vs. 2015)	-0.59	0.29	-0.91**	0.21	-0.90**	0.31
2018 (vs. 2015)	-1.13*	0.37	-1.84**	0.28	-1.73**	0.43
2019 (vs. 2015)	-1.81*	0.42	-3.04**	0.32	-2.70**	0.50
N (Clusters)	4,915 (1,165)		6,186 (1,399)		2,139 (488)	
R-squared	0.1805		0.2609		0.3616	
F Statistic	F (17, 1164) = 22.43, p < 0.001		F (17, 1398) = 40.63, p < 0.001		F (17, 487) = 18.60, p < 0.001	

***p<0.01, * p<0.05

[a] Definitely Would Recommend is the percent of respondents who reported that they would "definitely recommend" the hospital; [b] 7 extreme outliers removed; [c] 10 extreme outliers removed; [d] 9 extreme outliers removed

Figure 3. Process for data combination



CONCLUSION

Hospitals have developed strategies to address the core components of the Triple Aim, improving access and quality while decreasing costs, after the adoption of the Patient Protection and Affordable Care Act (ACA; Whittington, Nolan, Lewis, & Torres, 2015). Patient-centered care models offer one strategy to address these challenges (Institute of Medicine, 2001). Hospitals face unique situations, due to complexity and patient acuity, warranting patient-centered and team approaches to clinical care (Coulter & Cleary, 2001). Innovative strategies that enable hospitals to operate within a patient-centered paradigm utilize proactive patient engagement at all leadership levels and well-integrated and communicative clinical teams (Aboumatar et al., 2015). One such strategy is the active inclusion of spiritual care providers in the care delivery process. Even as clinicians and researchers more widely acknowledge the importance of addressing patients' religious/spiritual needs, our understanding of who receives professional spiritual care, what hospitals integrate these professionals, and their impact is limited. This dissertation expanded the evidence about professional spiritual care providers, also known as chaplains, within hospitals. Specifically, the three manuscripts identified the population characteristics of those using chaplains when hospitalized, examined the institutional and environmental factors associated with a hospital reporting a chaplaincy

department, and reported on the positive impact chaplaincy departments have on patient experience.

The first manuscript in this dissertation used the Aday and Andersen (1974) framework for the study of access to examine the utilization of chaplaincy services. The study examined what predisposing, enabling, and need-based characteristics were associated with use of a chaplain while hospitalized. Through a two-part logistic regression hurdle model, the results identified that religiously affiliated adults were more likely to see a chaplain and had more extensive contact with chaplains than those religiously unaffiliated. Further, the paper identified that many need-based variables, both perceived health-needs and evaluated health needs, were associated with chaplaincy utilization. As length of stay increased, the odds of a chaplaincy visit increased as did the extent of use; patients with poor or fair self-rated health also had a higher odds and rate of chaplaincy use than those with excellent, very good, or good health. The results suggest that spiritual care service use within hospitals focuses on those with the most acute health needs and also with having a religious affiliation.

The second manuscript inspected the institutional and environmental characteristics predictive of whether or not a hospital reported a chaplaincy department. Guided by Institutional Theory and Resource Dependency Theory, the analysis examined these trends from 2010 to 2019. The results suggested that more institutional than environmental factors were associated with reporting a department. Specifically, hospitals with at least one intensive care unit, those accredited by The Joint Commission, and those belonging to a health system had higher odds of reporting a chaplaincy department. Further, a positive association was found between having a department and

the percent of inpatient days covered by Medicare as well as between having a department and a larger hospital size. Environmentally, the paper found that hospitals located in urban areas had higher odds of reporting a chaplaincy department; hospitals had greater odds of reporting a department as the per capita income increased within a county as well. In sum, more institutional than environmental characteristics influenced a hospital's reporting, but munificence was associated with having a chaplaincy department at the environmental level. Hospitals decide whether or not to have a chaplaincy department one hospital at a time and are potentially influenced by more environmental resources.

The final manuscript examined what impact chaplains may have on hospital performance as measured by patient experience. Contingency Theory posits that strategies used by organizations to achieve peak performance depend on both organizational and environmental factors. While controlling for organizational and environmental characteristics associated with patient satisfaction scores, this manuscript examined how patient experience scores differ between hospitals with and without a chaplaincy department. The findings, stratified by hospital size, suggested that hospitals with between 150 to 399 staffed beds have approximately 2% more respondents that rate their overall experience as a 9 or 10 and approximately 3% more respondents likely to recommend the hospital than the respondents at hospitals without a department. Such findings suggest that chaplains may indeed impact patient experience at certain staff-to-patient ratios.

All three of these studies add unique contributions to chaplaincy, healthcare administrators and policymakers, and for health services researchers. For professional

chaplaincy, the studies examine vital questions while guided by theory and present findings at an organizational level. The present research provides evidence that use of spiritual care services occurs in U.S. hospitals with more munificent and flexible resources. With the results, chaplains should advocate for routine screening for spiritual distress and report about the vital role of chaplaincy integration for performance outcomes. For healthcare policymakers and administrators, this research demonstrates that hospitals continue to have substantial gaps in the provision of patient-centered care. These healthcare leaders can now acknowledge that spiritual care has been focused on acute needs rather than preventative approaches, that hospitals lack regulation or standardization for service implementation, and chaplaincy care can impact metrics tied to reimbursement. Such findings warrant the identification of strategies to further equitable access to spiritual care services. Standardized screening for spiritual distress and needs could support administrators in this endeavor. For health services researchers (HSR), the methodologies employed in this research identified key variables that warrant examination in future research. HSR need to study further how a more intentional provision of whole-person care within various points of healthcare delivery impact access, cost, and quality metrics.

Future Research

Future research should build on the findings presented here in a number of ways. First, researchers need to examine rates of chaplaincy utilization for a wider population. Future research will need to examine the characteristics of those receiving chaplaincy care from multiple points of delivery across the United States. How those characteristics differ between outpatient and inpatient settings would add helpful information as well.

Second, since a majority of hospitals provide chaplaincy services, organizations that collect data about hospitals need to refine the metrics beyond dichotomous measures. Future research will need to identify the key staffing metrics and use those to further examine the integration of chaplaincy services. Finally, future research will need to explore how variations in chaplaincy scope of service impacts hospital performance and through what mechanisms. Whether or not the care chaplains provide directly impacts patient experience or through staff support will provide important guidance for hospital staffing of chaplains, staff turnover in hospitals, and improve the quality of care.

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APPENDICES

Appendix 1. Chapter 2 Data Sources

Variable	Data Source
Acuity Church Relationship Critical Access ED Department JC Accreditation Ownership Percent Medicare Days Staffed Beds System Membership Teaching Hospital Trauma Level	American Hospital Association (AHA) Annual Survey
Persons over 65 years old Unemployment Rate Per Capita Income	Area Health Resource File (AHRF)
Urban	AHA
Beds per Capita	AHRF
Medicaid Expansion State	Kaiser Family Foundation (KFF)
Census Region	AHA
Percent Medicaid Days	AHA

Appendix 2. Percent of all Hospital Types Reporting Chaplaincy Department by Year

Year	Total Hospitals	Total Adult Med/Surg	Total Adult Specialty	Total Pediatric Hospitals	Percent of Adult Medical/ Surgical Hospitals with Chaplaincy Department [a]	Percent of Adult Specialty with Chaplaincy Department [a]	Percent of Pediatric Hospitals with Chaplaincy Department [a]
2010	6,133	4,670 (76.2)	1,316 (21.5)	147 (2.4)	74.6%	52.3%	60.0%
2011	6,118	4,703 (76.9)	1,273 (20.8)	142 (2.3)	75.4%	54.6%	60.8%
2012	6,106	4,614 (75.6)	1,351 (22.1)	141 (2.3)	76.2%	52.5%	62.2%
2013	6,094	4,596 (75.4)	1,360 (22.3)	138 (2.3)	77.0%	52.3%	58.8%
2014	6,040	4,521 (74.5)	1,377 (22.8)	142 (2.4)	77.5%	53.1%	59.8%
2015	6,047	4,491 (74.3)	1,413 (23.4)	143 (2.4)	77.9%	51.6%	59.8%
2016	6,036	4,491 (74.4)	1,404 (23.3)	141 (2.3)	78.2%	50.7%	61.8%
2017	6,076	4,480 (73.3)	1,457 (24.0)	139 (2.3)	79.5%	53.9%	64.7%
2018	6,012	4,434 (73.8)	1,439 (23.9)	139 (2.3)	80.1%	51.0%	63.0%
2019	5,957	4,384 (73.6)	1,438 (24.1)	135 (2.3)	79.8%	50.5%	69.3%

[a] Percentage does not include those who did not report that year

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"Advancements in the Social Determinants of Health: A Social Network Analysis." Center for Health Organization Transformation & The Humana Foundation. January 2020 – June 2021

RESEARCH BRIEFS & OTHER NON-PEER REVIEWED PUBLICATIONS

White, K.B., Resmondo, Z., Jennings, J., and Creel, L. (2021). Advancements in Social Determinants of Health: A Social Network Analysis (National Science Foundation Center for Health Organization Transformation Report No. 1738359). Louisville, KY: University of Louisville School of Public Health and Information Sciences.

Karimi, S., Salunkhe, S. S., **White, K.B**., Little, B., McKinney, W. P., Mitra, R., ... & DuPre, N. (2021). Stratified Random Sampling Methodology for Observing

Community Mask Use within Indoor Settings: Results from Louisville, Kentucky during the COVID-19
Pandemic. bioRxiv 2021.02.25.432837; doi: https://doi.org/10.1101/2021.02.25.432837

White, K.B. & Fitchett, G. (2020). Developing Evidence-based Spiritual Care. Public Health Religion and Spirituality Bulletin. [Online 13 Nov 2020, Article A017] http://www.publichealthrs.org/a017/

Karimi, S.M., Majbouri, M., **White, K.B**., Little, B., McKinney, W.P., & DuPre, N. (2020) Spring Weather and COVID-19 Deaths in the U.S. medRxiv. 2020;2020.06.20.20136259. doi:10.1101/2020.06.20.20136259

White, K.B., Combs, R., Johnson, R., and Gurung, I. (2020, May). Professional Health Care Chaplaincy Certification: Exploring Efficacy and Strategizing Future Directions (National Science Foundation Center for Health Organization Transformation Report No. Pop2). Louisville, KY: University of Louisville School of Public Health and Information Sciences.

White, K.B. & Oliver, R. (2019, October). What is evidence? APC Forum. Online newsletter for the Association of Professional Chaplains.

White, K.B. & Jennings, J.C. (2019, June 15). Research Brief: The Relationship between Social Connection, Asset Security, Food Security, & Post-Secondary Success. Developed for the Humana Foundation.

White, K.B. (2018, January 18). Return on Investment & Healthcare Chaplaincy: Demonstrating a Financial Impact. Blog post for Transforming Chaplaincy. Access at https://www.transformchaplaincy.org/2018/01/18/return-on-investment-healthcare-chaplaincy-demonstrating-a-financial-impact/

Blankenship1, K. (2014, April 22). An "Advanced Care Plan" for a Chaplain Serving the Outpatient Kirklin Clinic. Plainviews Publications of Healthcare Chaplaincy Network.

GRANTS & FELLOWSHIPS

2017 -2018 Innovative Program Award – ACPE Foundation
"Mapping Chaplain Diversity: An Initial Investigation"
Wendy Cadge, Kelsey White, & Marilyn Barnes (Co-Investigators)
Grant Amount: $6,000.00

2016-2019 Transforming Chaplaincy Research Fellowship, Cohort 1

[1] Maiden Name - Blankenship

POSTERS & PRESENTATIONS

Combs, R., **White, K.B.,** & Decker, H. (October, 2021). Professional healthcare chaplaincy: Exploring efficacy and strategizing future directions. Oral Presentation for American Public Health Association (APHA) Annual Meeting. Denver, CO.

White, K.B., Resmondo, Z., Jennings, J.C., Creel, L., & Kelly Pryor, B. (June, 2021). Exploration of Interorganizational Collaboration to Improve Social Connection. Accepted for poster presentation at 2021 Annual Research Meeting of AcademyHealth, Virtual.

White, K.B., Combs, R., & Decker, H. (June, 2021). Board Certification of Professional Chaplains: A Qualitative Study of Stakeholder Perspectives. Workshop for the 2021 Association of Professional Chaplains National Conference, Virtual.

White, K.B. (October, 2020). Professional Health Care Chaplaincy: Exploring Efficacy & Strategizing Future Directions. Insight Presentation at Fall IAB Meeting of the Center for Health Organization Transformation. Virtual.

Barnes, M.J.D., & **White, K.B.** (September, 2020). Diversity, Equity, & Inclusion. Chaplaincy Innovation Lab Webinar Presentation.

White, K.B., Barnes, M.J.D., Cadge, W., & Fitchett, G. (June, 2020). Mapping the Health Care Chaplaincy Workforce: A Baseline Description. Poster presentation accepted for the 2020 Annual Research Meeting of AcademyHealth, Boston, MA. *(Conference not held due to COVID-19)*

Combs, R., **White, K.B.,** Johnson, R., & Gurung, I. (June, 2020). Professional Health Care Chaplaincy: Exploring Efficacy & Strategizing Future Directions. Poster presentation accepted for the 2020 Annual Research Meeting for AcademyHealth, Boston, MA. *(Conference not held due to COVID-19)*

White, K.B., Jennings, J.C., & Pryor, B. (October, 2019). Exploring the Linkage between Social Connection and Social Determinants of Health. Poster presentation at Fall IAB Meeting of the Center for Health Organization Transformation, Seattle, WA.

White, K.B., Combs, R., Johnson, R., & Gurung, I. (October, 2019). Professional Chaplaincy Certification: Exploring Efficacy and Strategizing Future Directions. Poster presentation at Fall IAB Meeting of the Center for Health Organization Transformation, Seattle, WA.

White, K.B. (July, 2019). Who are healthcare chaplains? A Workforce Snapshot. Presentation at the 2019 Louisville Area ACPE Cluster Meeting, Louisville, KY.

White, K.B., Barnes, M.J.D., Cadge, W., & Fitchett, G. (June, 2019). Mapping Chaplain Workforce: A Baseline Investigation. Poster Presentation at the 2019 Association of Professional Chaplains National Conference, Orlando, FL.

Barnes, M.J.D, Rajaee, G., & **White, K.B.** (June, 2019). From Research Question to Project. Professional Development Intensive at the 2019 Association of Professional Chaplains National Conference, Orlando, FL.

White, K.B. & Palmer, P.K. (June, 2019). Quantitative Research for Beginners. Professional Development Intensive at the 2019 Association of Professional Chaplains National Conference, Orlando, FL.

White, K.B. (2019, April). Professional Healthcare Chaplaincy Certification: Exploring Efficacy & Strategizing Future Directions. Project Proposal Presentation at Spring IAB Meeting of the Center for Health Organization Transformation, Malvern, PA.

O'Keefe, M. & **White, K.B.** (2018, October). Asynchronous Telepsychiatry: A Systematic Review. Poster Presentation at Fall IAB Meeting of the Center for Health Organization Transformation, McLean, VA.

Fitchett, G., **White, K.B.**, & Lyndes, K. (2018, July). Quantitative Research for Beginners. Professional Development Intensive at the 2018 Association of Professional Chaplains/National Association of Catholic Chaplains National Conference, Anaheim, CA.

White, K.B. (2018, May). Praying with Health Challenges: An Examination of the Frequency of Prayers for Health and Associations with Poloma and Pendleton's (1989) Prayer Types. Thesis Presentation for Completion of Master of Science Degree, Louisville, KY.

White, K.B. (2017, December). Religion & Spirituality in Oncology. Presentation for Hematology/Oncology Rounds for Norton Healthcare, Louisville, KY.

White, K.B. (2015, August). Compassionate Care for Nurses & Nursing Assistants. Educational Presentation give for Medical/Surgical staff at Norton Women's & Children's Hospital, Louisville, KY.

White, K.B. & Kilpatrick, L. (2015, June). Progressive Chaplaincy: Chaplaincy in an Outpatient World. Workshop Presentation for the Association of Professional Chaplains Annual Conference, Louisville, KY.

White, K.B. (2014, November). Spirituality & Cultural Awareness. Didactic presentation for Palliative Medicine Fellows of UAB Medicine, Birmingham, AL.

Blankenship, K. (2014, June). Advanced Care Planning for Patient Navigators. Educational Presentation for SPARC Program, Birmingham, AL.

Blankenship, K. (2014, May). Care Coordination in Breast Cancer. Education for breast cancer volunteers in the SPARC Program, Birmingham, AL.

Blankenship, K. (2014, April). Racism & Chaplaincy. Didactic for Clinical Pastoral Education Students, UAB Medicine, Birmingham, AL.

Blankenship, K. (2013, December). Providing Compassionate Care to Alzheimer's Patients. Community Presentation, Twin Pines Christian Church, Lexington, KY.

Blankenship, K. (2013, December). Emotional Overload for Nurse Practitioners. Grand Rounds Presentation, UAB Medicine, Birmingham, AL.

Thompson, M. & **Blankenship, K.** (2013). Self-Reflection as Patient-Care for Medical Students. Ground Rounds Presentation, UAB Medicine, Birmingham, AL.

PROFESSIONAL ACTIVITES

SERVICE

2021	Student Panel for UofL SPHIS Open House
2020-2021	Student Representative & Member, UofL Department of Health Management & System Sciences, Faculty Search Committee
2020-2021	Student Representative & Member, UofL Department of Health Management & System Sciences PhD Committee
2019	Student Representative & Member, CHOT Program Manager Search Committee

EDITORIAL & PEER REVIEWER

2021(Aug) - Present	Associate Editor. *Journal of Health Care Chaplaincy*
2021	Peer Reviewer. *Academy of Management Conference Paper Submissions*
2020	Peer Reviewer. *Critical Research on Religion*
	Peer Reviewer. *Teaching Theology & Religion*
2019	Peer Reviewer. *Journal for the Scientific Study of Religion.*
2018 - Present	Editorial Board Member. *Journal of Health Care Chaplaincy.*
2018	Peer Reviewer. *Journal of Religion and Health.*
	Peer Reviewer. *Journal of Pastoral Care and Counseling.*
2017	Peer Reviewer (Mentored – George Fitchett). *Spiritual Care in Clinical Practice.*
	Peer Reviewer (Mentored – George Fitchett). *Journal of Health Care Chaplaincy.*

CERTIFICATIONS

2018	Endorsement – Religious Naturalist Association
2016	Designated Tissue Requester - Kentucky Organ Donation Affiliates
2014	Respecting Choices Facilitator - Gunderson Health System
2013	Board Certified Chaplain - BCCI Inc., Association of Professional Chaplains

2011	Ecclesiastical Endorsement - Christian Church (Disciples of Christ)
2009, 2011	Clinical Pastoral Education, 4 Units - Association of Clinical Pastoral Education
2009	Ordained Minister - Christian Church (Disciples of Christ)

MEMBERSHIPS

2020 – Present	Academy of Management
2019 – Present	Academy Health
2018 – Present	Religious Naturalist Association
2013 – Present	Association of Professional Chaplains

AWARDS

2018	Delta Omega Beta Phi, Public Health Honorary
2016	Marc A. Lehmann Spirit of Service Award, Leukemia & Lymphoma Society of Kentucky
2006-2009	Arthur Vining Davis Foundation Full Tuition Scholarship, Union Theological Seminary

Software Skills: STATA, R, AtlasTi, Dedoose, EPIC, UCINET, Microsoft Office Programs, Qualtrics

References Available Upon Request