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Linguistics, Compassion, and Health:

CBCT & Differences in the Linguistic Characteristics of Hospital Chaplains

By

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Master of Public Health

Behavioral, Social, and Health Education Sciences

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
In partial fulfillment of the requirements for the degree of
Master of Public Health
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Abstract

This study examined the differences in linguistic characteristics of hospital chaplains who received cognitively based compassion training (CBCT) compared to those who did not during chaplain consults. This study also aimed to understand the associations between hospital chaplains' linguistic behavior and patient-reported mental health. Hospital chaplains (N= 15) were previously assigned to either intervention (CBCT and CCSH) or waitlist group (standard CPE training). Participating chaplains were shadowed during hospital shifts and recorded inpatient consults (N= 122). Pre-consultation, patients completed consent and a distress thermometer. Post-consult patients completed measures of hospital anxiety and depression (HADS). Chaplain-patient consults were transcribed and analyzed using Linguistic Inquiry Word Count (LIWC). LIWC uses a dictionary to identify and categorize words in transcribed texts into pre-set categories based on psychological dimensions. We used independent t-tests to analyze differences between distress, anxiety, and depression symptoms among patients who encountered intervention chaplains compared to waitlist chaplains. Pearson's correlation was used to analyze the associations in patient and chaplain speech within each group. Results showed that intervention chaplains showed linguistic characteristics that favored pronoun usage, specifically impersonal pronouns, and you, more than their waitlist peers, who favored anger words. Waitlist and intervention chaplain-patient speech showed about an equal amount of significant positive associations with variations in association by LIWC category. Waitlist and intervention group patients didn't significantly differ in anxiety scores, but intervention patients reported significantly lower depressive symptoms than waitlist patients. These findings suggest that CBCT is a viable training option for hospital chaplains alongside CPE training.

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Chapter 1: Introduction

There is a significant prevalence of hospital inpatients experiencing multiple coexisting diseases, many of these coexisting diseases being medical and psychiatric comorbidities (Jansen et al, 2018; Valderas et al, 2009). This is especially true for people hospitalized with chronic illnesses (diabetes, heart disease, cancer, etc.), who experience higher rates of anxiety and depression than the general population (Turon et al 2019). The relationship between psychological and medical conditions are bidirectional, with those experiencing medical conditions being at higher risk of developing psychiatric conditions and symptoms and vice versa (Doherty & Gaughran, 2014). Specifically, major depressive disorder and anxiety have been identified as the most prevalent comorbidities found with medical conditions (Ducat et al, 2014; Lagisetty et al, 2017).

Depression and anxiety have both been linked to an increased risk of negative clinical outcomes for inpatients (Gonzalez-Saenz de Tejada et al, 2017; Litz & Leslie, 2017). Depression and anxiety comorbidities in patients are linked to a reduction of medication adherence, increased rehospitalization, and increased mortality (Jansen et al, 2018; Litz et al, 2017; Ritzwoller et al, 2006). While psychiatric disorders are prevalent among hospital inpatients, many patients are undiagnosed before their hospitalization and may stay undiagnosed once hospitalized (Doherty et al, 2014; Thombs et al, 2016). Differentiating between medical and psychiatric symptoms can be difficult because clinicians lack psychiatric experience, have limited time with patients, and cannot differentiate similarities in symptomology. (Turon et al, 2019). This has resulted in a focus on patient-reported symptomology of anxiety and depression (Miller et al, 2008).

Healthcare provider's choice of communication style with their patients has been linked to a variety of patient outcomes related to patient-reported well-being (Farzadnia & Giles, 2015; Hesse & Rauscher, 2019; Howick et al, 2018; Rutter et al, 1996). Patients receiving communication from providers that is patient-centered, empathetic, and affectionate report lower levels of stress, depression, and anxiety (Hesse & Rauscher, 2019; Howick et al, 2018; Riedl & Schüßler, 2017; Zachariae et al, 2003). Conversely, patients receiving communication low in empathy and compassion report higher levels of service dissatisfaction, stress, anxiety, and distrust of their healthcare practitioner (Canovas et al, 2018; Hesse & Rauscher, 2019; Zachariae et al, 2003). Although there are benefits to patient-centered and empathetic communication, healthcare practitioners (e.g., doctors, nurses, etc.) report difficulties implementing these practices because of multiple factors such as lack of training and lack of time with patients (Loeb et al, 2012; Roberge et al, 2016). However, hospital chaplains help to fill the responsibility of empathetic and centered interactions with the patients they serve.

Hospital chaplains are historically known for playing a key role in the delivery of spiritual care for hospitalized patients (Timmons et al, 2018). However, chaplains not only provide spiritual care but also a variety of other services for patients and their loved ones (Damen et al, 2019; Teague et al, 2019; Timmons et al, 2018). Chaplains participate in many non-spiritual activities with patients such as patient advocacy, emotional support, and counseling (Jeuland et al, 2017; Vanderwerker et al, 2008; Timmons et al, 2018). Research has found chaplain-patient consults result in positive patient outcomes. These outcomes include but are not limited to a reduction in anxiety levels, improvements in depression, and reduced length of hospital stay (Marin et al, 2015; Damen et al, 2019). The act of providing these services can vary depending on the chaplain, their training, and their level of experience.

Chaplaincy certification is overseen by six professional groups including the Association of Professional Chaplains and the ACPE Standard for Spiritual Care and Education (ACPE, 2018). Although chaplain training traditionally was focused on religious counsel and practice, clinical pastoral education (CPE) has evolved to focus on four primary components (ACPE, 2018):

1. Integration of Theory and Practice
2. Professional Identity and Conduct
3. Professional Practice Skills
4. Organizational Leadership

Because a core component of professional practice skills involves empathic accuracy and compassionate action, some ACPE programs are interested in identifying and evaluating cognitively based compassion training (CBCT). CBCT focuses on teaching skills related to active engagement in empathy, compassion, and mindfulness (Mascaro et al, 2012). Research has shown CBCT provides a variety of benefits such as a reduction in feelings of stress, depression, and loneliness (Mascaro et al, 2018). CBCT has also been found to improve the potential for empathetic and compassionate interpersonal interaction through the improvement of empathic accuracy and reduction in occupational burnout (Mascaro et al, 2012). Recent research has also assessed the effectiveness of incorporating CBCT into chaplain education on chaplain well-being (Ash et al, 2020) but has not studied the effect of CBCT training on chaplain-patient communication in depth.

This study is influenced by three core models and theories: Cognitively Based Compassion Training Integrative Model, Communication Accommodation Theory, and the Person-Centered Communication. The CBCT Integrative model focuses on the development of

interpersonal and intrapersonal skills through CBCT training of hospital chaplains (Ash et al, 2019). For this study, the utilization of interpersonal skills (e.g., compassion, empathy, and identification) within chaplain-patient consults was the primary focus of the analysis (Ash et al, 2019). Communication Accommodation Theory (CAT) posits that there are two primary forms of communication strategy: convergence and divergence (Giles & Ogay, 2007). Convergence is defined as the act of an individual adjusting their linguistic characteristics to mimic those of the individual they are interacting with, often to establish trust and gain approval (Giles & Ogay, 2007). Conversely, divergence is defined as the act of an individual using differential speech, often in an attempt at othering the individual they are interacting with or maintaining the linguistic characteristics they entered with (Giles & Ogay, 2007) This study will focus on the emotionality of speech (e.g., positive and negative word choice) through comparison of chaplains and patients. Person-Centered Communication (PCC) (often used interchangeably with patient-centered communication) describes the concept of centering the individual within the conversation and acknowledging their beliefs and needs (Naughton, 2018). This study will focus on PCC through attention focus and emotionality of chaplain speech.

The aim of the current study is to exam the differences in linguistic characteristics of hospital chaplains who received cognitively based compassion training (CBCT) and learned to deliver compassion-centered spiritual health (CCSH) compared to those who did not during chaplain consults. The current study also aims to understand the associations between hospital chaplains' linguistic behaviors and patient-reported mental health.

Chapter 2: Literature Review

This chapter will contain an overview of multiple topics related to the study such as patient mental wellbeing, chaplains' roles, and their impact on patient wellbeing. The chapter will also review the current literature surrounding cognitively based compassion training (CBCT) and compassion-centered spiritual health (CCSH) interventions on chaplain practice. This chapter will also address current research on communication in healthcare and patient well-being and will conclude with the introduction of several concepts that guide the process of this study.

Patient Wellbeing

Mental illness presents a significant burden for those already experiencing physical illness (Doherty & Gaughran, 2014). Medical-psychiatric comorbidities can be defined as the existence of two or more concurrent illnesses, with at least one being medical and another being psychiatric (Jansen et al, 2018; Valderas et al, 2009) Research has shown the significance of this burden for hospital inpatients specifically, with an estimated 30-40% of those hospitalized experiencing medical-psychiatric comorbidities (Doherty & Gaughran, 2014). While the range of psychiatric disorders varies across medically ill patients, anxiety and depression are two of the most prevalent psychiatric comorbidities identified among chronically ill and hospitalized populations (Dickens & Creed, 2001). Of those experiencing anxious and depressive symptoms, many experience a set of additional health concerns.

Research has found the presence of anxiety and/or depression increases the risk for a variety of negative clinical outcomes within patient populations (Evans et al, 2005). Individuals experiencing medical-psychiatric comorbidities experience higher rates of somatic symptoms (e.g., pain), rehospitalization, a longer length of stay, additional morbidities, and premature

mortality (Miller et al, 2008). Research has linked the presence of depression specifically to various poorer outcomes such as lower medical adherence, poorer long-term health behaviors, and higher medical costs (Jansen et al, 2018; Litz et al, 2017; Ritzwoller et al, 2006). The presence of medical-psychiatric comorbidities also complicates treatment for patients, with many psychotropic mediations interacting with other necessary medications or causing side effects that negatively impact the patients' medical condition (Goldman, 2000; Muench & Hamer, 2010; Meuret et al, 2020). These effects result in many situations where pharmacological treatment is not a primary option for patients experiencing medical-psychiatric comorbidities, leading to further complications in inpatient recovery (English et al, 2012; Goldman, 2000). These findings have resulted in therapeutic practices being researched as a means of prevention and treatment.

Provider-Patient Communication

Communication between health professionals and the patients they serve influences patient well-being (Jeanne Wirspa et al, 2019; Williams et al, 2018). One meta-analysis and systematic review found that patients who engage with healthcare practitioners who use empathetic and positive language report reductions in somatic systems and anxiety along with higher rates of satisfaction (Howick et al, 2018). Affectionate and empathetic communication from doctors resulted in multiple positive outcomes from patients such as higher rates of patient satisfaction with care and medical adherence while also reducing levels of stress, pain, and depression (Floyd, Hesse, & Haynes, 2007; Hesse & Rauscher, 2018; Canovas et al, 2018). Practitioner empathy also results in greater levels of trust between patients and their providers (Canovas et al, 2018). Conversely, patients of providers who have lower levels of empathy, affection, and compassion report higher rates of negative outcomes such as lower medication

adherence and higher rates of stress (Canovas et al, 2018; Floyd et al, 2007; Hesse & Rauscher, 2018).

Patient-patient communication quality and outcomes can be influenced by a variety of factors such as perceived provider kindness, patient psychological well-being, and quality of patient-prover relationship (Schoenfelder et al, 2011; Sheikh, Qayyum, & Panda, 2019; Weeger & Farin, 2017). A study of 8428 patients found hospital inpatients' perceptions of nurse and physician kindness were the greatest predictor of not only patient satisfaction but also communication with nurses (whom patients see most often) as being of great importance to patients (Schoenfelder, Klewer, & Kugler, 2011). Patient-perceived emotionally supportive communication from physicians has also been found to be a predictor of patient health-related quality of life in cardiac rehabilitation patients (Weeger & Farin, 2017). Although both provider-initiated aspects of patient-provider relationships influence patient well-being, patients' own psychological well-being during treatment also impacts patient-provider relationship perceptions and satisfaction (Weeger & Farin, 2017; Sheikh, Qayyum, & Panda, 2019). A 2019 study of 360 patients found that when controlling for various confounding variables, there was a positive association between patient's psychological well-being and satisfaction with treatment and physician rapport (Sheikh, Qayyum, & Panda, 2019). These findings suggest the importance of not only addressing provider communication patterns and style but also patient psychological well-being during the time of treatment to improve outcomes.

The Role of Hospital Chaplains

Hospital chaplains historically have acted as providers of spiritual and religious counsel for patients hospitalized and receiving care (Timmons et al, 2018). This includes services such as religious rituals, spiritual guidance, and spiritual reflection regarding their current illness (ACPE,

2018; Jeuland et al, 2017). However, as patients have shifted from more religious to spiritual affiliations, the chaplain-patient dynamic has adjusted to accommodate it (Timmons et al, 2018). Although chaplains traditionally have participated in religious consultations with hospital inpatients, they also act within many other roles in the hospital setting (Vanderwerker et al, 2008; Timmons et al, 2018). Healthcare professionals have described hospital chaplains as empathetic listeners, patient liaisons, creative problem solvers, and decision-making guides (Cadge et al, 2011; Damen et al, 2019; Teague et al, 2019). Research has found chaplains also play a therapeutic role for patients, being viewed like "counselors" (Marin et al, 2015). It is estimated that 72% of chaplain-patient consults include empathetic listening, 92% active listening, and 30% emotional support along with spiritual activities (ACPE, 2018).

Theoretical Background

Cognitively Based Compassion Training (CBCT)

Cognitively Based Compassion Training (CBCT) aims to cultivate individual compassion through secular training inspired by traditional Tibetan Buddhist practices (Ozawa-de Silva et al., 2012). Specifically, CBCT utilizes the **lojong** (meaning "mind training") tradition to increase compassion while also reducing self-centeredness to achieve the overall goals of unbiased compassion that is not limited to the sole conditions of familial ties and without the requirement of reciprocity (Ozawa-de Silva et al., 2012). This has significant relevance to the practice of healthcare workers, who interact with patients who are not family and are unable to provide reciprocity.

The CBCT Integrative model has been proposed to explain emotional interactions and focuses on the development of interpersonal and intrapersonal skills (Ash et al, 2019). The model proposes a bidirectional reinforcing effect, with intrapersonal skills acting as a reinforcer of

intrapersonal skills and vice versa (Ash et al, 2019). This bidirectional relationship works to reinforce internal resilience and external compassion, leading to overall improvements in wellbeing (Ash et al, 2019). The model proposes the development of prosocial motivations (e.g., compassion, empathy, and identification) through several training modules that result in greater compassion (Ash et al, 2019).

The interpersonal skills pathway modules relate to three primary concepts:

1. Cultivating Impartiality
2. Gratitude and Affection
3. Empathetic Concern and Engaged Compassion

Cultivating Impartiality

The cultivating impartiality module is centered around the process of viewing others as like oneself in their overall wishes and desires for wellbeing (Ash et al, 2019). This is seen as a step-in cultivating feeling of affection for others through the skill of identification (Ash et al, 2019).

Gratitude and Affection

The gratitude and affection module is centered around cultivating feelings of gratitude (Ash et al, 2019). Affection and gratitude are cultivated through reflection and acknowledgment that individual wellbeing is dependent on the input and actions of others (Ash et al, 2019).

Empathetic Concern and Engaged Compassion

The empathetic concern and engaged compassion modules are centered around taking the skills cultivated in previous modules to further cultivate feelings of empathetic concern rather than empathetic distress (Ash et al, 2019). This focuses on identifying other's vulnerabilities and

establishing empathetic concern instead of distress. The purpose of this is to enhance the motivation to help which is created by empathetic concern instead of distress (Ash et al, 2019). The skills developed in these modules are taught with the goal of not only cultivating compassion but also extending those feelings to others to foster awareness and prosocial motivations (Ash et al, 2019).

Communication Accommodation Theory

Communication Accommodation Theory (CAT) is focused on the linguistic, paralinguistic, and sometimes nonverbal features of an individual's communication and how they are adjusted when interacting with others (Giles & Soliz, 2016). CAT posits that there are two primary forms of communication strategy: convergence and divergence (Giles & Ogay, 2007; Giles & Soliz, 2016). Convergence is defined as the act of an individual adjusting their linguistic characteristics to mimic those of the individual they are interacting with, often to establish trust and gain approval (Giles & Ogay, 2007). The theory has evolved to involve four more specific categories of accommodation:

1. Accommodation: implementation of appropriate and positive accommodation
2. Non-accommodation: failure to accommodate and/or inappropriate accommodation
3. Reluctant Accommodation: implementation of accommodation for cultural norms
4. Over Accommodation: implementation of accommodation techniques based on stereotypes and/or with the ending of the conversation quickly.

Providers and patients experience difficulties accommodating to each other's communication style within the hospital setting. A systematic review of 21 studies found that healthcare providers have shown difficulties accommodating to patient speech, with common communication strategies falling into overaccommodation and non-accommodation (Farzadnia

& Giles, 2015). Even when attempting to convey positive or negative health information to patients, providers tend to stick to their own terminology and understanding of concepts when communicating with patients creating a disconnect in doctor and patient perceptions (Baker, Gallois, Driedger, Santesso, 2011). Specifically, with emotional expression, providers tend to increase their usage of affect words when communicating negative health information but reduce their usage of affect words when communicating medical issues or errors committed by staff (Farzadnia & Giles, 2015). Emotional accommodation specifically has been identified as an important domain when creating interactions perceived as satisfying by patients (Watson & Gallois, 1999). These accommodation difficulties could be attributed to providers' perceptions of their role as solely the informer and facilitator in patient-provider communication (Baker et al, 2011). This lack of proper accommodation can negatively influence patient satisfaction with their provider (Farzadnia & Giles, 2015; Watson & Gallois, 1999).

Person-Centered Communication

Person-Centered Communication (PCC) describes the concept of centering another (besides the speaker) individual within the conversation and acknowledging their beliefs and needs (Naughton, 2018). PCC is highly present in healthcare-related research primarily focused on healthcare practitioners (Naughton, 2018; Williams et al, 2018). The use of the PCC style within healthcare has been found to have a variety of beneficial effects on patient populations such as reductions in stress, anxiety symptoms, and greater overall satisfaction with care (Hesse & Rauscher, 2018; Canovas et al, 2018).

Previous research has found a correlation between person-centeredness and pronoun usage trends (Cannava et al, 2018). High levels of first-person pronouns usage by a speaker is found to be associated with ratings of low-person centeredness, while high amounts of second-person

pronouns were associated with a rating of high-person centeredness (Tausczik & Pennebaker, 2010; Cannava et al, 2018). Pronouns have also been marked as an identifier for focus, which individuals who are more self-focused having a higher usage of personal pronouns such as “I” and “me” (Tausczik & Pennebaker, 2010). However, this association is primarily found with first-person singular pronouns and not with first-person plural pronouns such as "we" and “our” which instead are associated with a group focus (Chung & Pennebaker, 2007; Tausczik & Pennebaker, 2010).

For this study, all theories were conceptualized in various ways. For CAT, accommodation and non-accommodation were the primary focus of the study. These two concepts align closely with the original CAT concepts of convergence (accommodation) and divergence (non-accommodation). Associations in linguistic characteristics were used as an identifier for accommodation and non-accommodation. For PCC, the linguistic characteristic of pronoun usage was used as an identifier of person-centeredness. Pronoun usage is associated with focus and person-centeredness (Cannava et al, 2018; Tausczik & Pennebaker, 2010). The linguistic characteristics related to affect were used as identifiers of compassion and empathy (identified in CBCT). Affect characteristics in speech are associated with empathy (Tausczik & Pennebaker, 2010).

Research Gap and Study Aims

Studies have investigated the effects of CBCT on individual well-being and the effects of chaplain consults on patient well-being independently. Studies have also investigated the effects of CBCT on chaplain burnout and well-being. However, no studies have investigated the effect of CBCT on chaplain linguistic characteristics or its impact on chaplain’s interactions with patients. Specifically, no studies have examined CBCT’s effect on chaplain linguistic

characteristics and the additional impact those changes have on inpatient anxiety and depression symptoms post chaplain consult.

The current study examined the differences in linguistic characteristics of hospital chaplains who received cognitively based compassion training (CBCT) and learned to deliver Compassion-Centered Spiritual Health (CCSH) compared to those who did not during chaplain consults. The current study also aimed to understand the associations between hospital chaplains' linguistic behavior and patient-reported mental health.

Chapter 3: Methods

Participants

The sample is comprised of chaplains and the patients they saw during the consultation. The 15 participating chaplains in this study were part of a larger randomized control trial study examining the effectiveness of compassion meditation training in clinical pastoral education and its effects on burnout. In the parent study, all chaplains were assigned to either participate in an intervention (CBCT and CCSH) or assigned to a waitlist group (standard CPE training). All chaplains who were enrolled in a selected ACPE-accredited clinical pastoral education program CPE program were invited to participate in the study. After collecting informed consent, researchers conducted shadowing sessions with chaplains for a period of 3 months. Researchers attempted to shadow all chaplains an equal number of times during the study time. During a shadowing session, researchers traveled with the chaplain as they conducted their consultations. Prior to the chaplain entering a patient's room, a research assistant conducted informed consent with the patient. Of the 133 chaplains' consults recorded, 122 transcripts were used for this study. Chaplain consults not used were omitted during the transcription process for a variety of reasons such as poor audio quality, non-English speaking patients, and because the consultation was interrupted.

Study Design & Procedures

Intervention

Cognitively Based Compassion Training (CBCT) aimed to cultivate individual compassion through secular training inspired by traditional Tibetan Buddhist practices (Ozawa-de Silva et al., 2012). The CBCT Integrative model focuses on the development of interpersonal

and intrapersonal skills through CBCT training of hospital chaplains (Ash, Harrison, Pinto, DiClemente, Negi, 2019).

The intervention was a four weeklong program that included a total of four full-day sessions offered to chaplains once per week. The intervention included foundational practice and seven modules:

1. Foundational Practice
2. Module I: Attentional Stability and Clarity
3. Module II: Insight into Nature of Mental Experience
4. Module III: Self-compassion
5. Module IV: Cultivating Impartiality
6. Module V: Gratitude and Affection
7. Module VI: Empathetic Concern and Engaged Compassion

Intervention chaplains were also invited to learn about Compassion-Centered Spiritual Health (CCSH) interventional approach. CCSH is an interventional approach that included exercises and activities that incorporated spiritual health best practices with CBCT with the goal of patients and chaplains working together cohesively **(**Compassion-Centered Spiritual Health (CCSH), 2020).

Data Collection

All audio recordings of chaplain-patient interactions were collected by placing a recorder in the chaplain’s pocket during consult sessions. Pre-consult, a distress thermometer was orally administered by the researcher to patients. Recordings were started upon the chaplain's entry into the patient’s room and were ended immediately upon the chaplain's departure. All interactions, including interactions with any visitors or staff who may have entered the room during the

consult, were also recorded. Post-consult, the hospital anxiety and depression scale were administered orally by the researcher to all patients.

Data Management

All audio recordings were converted to an mp4 format and audio file data such as chaplain identifier, patient identifier, and hospital site were documented in an excel file and stored in a secure cloud drive. All recorded sessions were then transcribed verbatim by researchers in Word document format and uploaded onto the cloud drive. Following upload, transcripts were then taken through a quality control check by two researchers to ensure transcription accuracy. Upon successful quality control check, transcripts were then prepared for analysis in the Linguistic Inquiry and Word Count (LIWC) program. Preparation included the modification of transcripts into three different formats: chaplain-patient interaction, chaplain speech, and patient speech. Modifications were completed by the researcher and a research assistant. Grammatical changes were performed using spell check on patient and chaplain speech to ensure wider opportunity for LIWC 2015 to capture speech. For example, phrases such as "ain't" would be modified to "are not". To do this, the researcher turned on the "spellcheck" feature within Microsoft Word. They then went through all potential spellcheck notifications to make any necessary changes to the transcript. Upon the competition of these modifications, copies of newly modified consult transcripts were created and broken down into three sub-transcripts: chaplain-only speech and patient-only speech. These three formats were then entered into LIWC 2015 to analyze various word frequencies across categories and subcategories.

LIWC 2015

The Linguistic Inquiry and Word Count 2015 (LIWC2015) computerized text analysis software was used to analyze 122 chaplains' consult transcripts. The LIWC 2015 used a master

dictionary of 6,400 words to identify and categorize words in transcribed texts into 125 pre-set categories and subcategories based on psychological dimensions. 122 chaplains consult transcripts, 122 chaplain-only speech, and 122 patient-only-speech transcripts were analyzed using LIWC 2015. LIWC output data included elements such as total count (e.g., word count), percentage of total words within the transcript for output variables (e.g., affect, pronouns, etc.), and standardized scores for summary variables (e.g., emotional tone). These output elements were broken down per each individual chaplain and patient.

Measures

Distress Thermometer

The Distress Thermometer (DT) is a screening tool used to measure the level of distress the patient was experiencing at the time of the chaplain consult (Holland et al, 2019). The DT is a single-item measure with a scale ranging from 0 “no distress” to 10 “extreme distress”. Patients were asked to best describe how much distress they were feeling within the past week, including the day of the consult. The DT question was orally administered to the patient only once by the researcher before the start of the chaplain consult.

Patient Hospital Anxiety and Depression Scale (HADS)

The Patient Hospital Anxiety and Depression Scale (HADS) is a 14-item self-report measure that assesses anxiety and depression in hospital patients (Zigmond & Snaith, 1983). HADS consists of 7 items used to measure anxiety and 7 items to measure depression, both formatted on a 4-point Likert scale ranging from scores of 0 “not at all” to 3 “most of the time”. The anxiety and depression subscale scores were determined by though independently summing up the scoring for the 7 items for their designated category. The HADS was administered immediately after the completion of the chaplain consult. All questions were orally administered

to the patient and the researcher filled in all responses on a paper form. For missing values, expectation-maximization was used to fill missing values for segments of the survey patients may have skipped. To use expectation maximization, two criteria needed to be met: there must have been enough data available from all other responses and data must have been missing at random. This allowed the researchers to use a formula to create an estimate of missing values based on patients' other survey responses.

Person Centeredness

Elements of person-centeredness were measured using the LIWC Pronoun category. This category consists of an overall personal pronoun usage percentage and a breakdown of word percentage used for each of the following categories: Personal Pronouns, I, We, You, She/He, They, and Impersonal Pronouns. To test this, independent t-tests were used to test for significant differences between the waitlist and intervention groups' chaplain LIWC data.

Empathy

Elements of empathy were measured using multiple LIWC categories under the summary data and affect categories. The summary category consists of an overall emotional tone score. This score measures the overall speaker level of positivity and scores speech on a scale of 0-100, with scores higher scores being indicative of higher levels of speaker positivity. The affect category includes overall affect word usage percentage and a breakdown of word percentage used for each of the following categories: Positive Emotion & Negative Emotion: Anxiety, Anger, and Sadness. To test this, independent t-tests were used to test for significant differences between the waitlist and intervention groups chaplain LIWC data.

Communication Accommodation

Communication Accommodation was measured through analyzing correlations between chaplain and patient speech in both the waitlist and intervention category. For this study, communication accommodation will be measured in two categories: convergence and divergence. Convergence will be identified as the presence of a significantly positive association while divergence will be identified as the presence of a significantly negative association. Associations between patient and chaplain speech will be measured in the following LIWC categories: affect (overall affect, positive emotion, negative emotion, anxiety, anger, sadness), social (overall social, family, and friend category), and concern (work, leisure, home, money, religion, death).

Data Analysis

Statistical Analysis

All linguistic data was analyzed using LIWC 2015. All LIWC output, DT, and HADS were then imported into and analyzed using Excel (Version 16.48). A combination of parametric and non-parametric tests was used for analysis. Descriptive statistics analysis was used to identify characteristics of the sample and their linguistic characteristics such as number of patients, number of chaplains per group, number of consults, etc. Differences in means between DT, HADS-Anxiety, and HADS-Depression patients who encountered waitlist chaplains and patients who encountered intervention chaplains were also analyzed using independent t-tests. Associations in patient and chaplain speech within each group was analyzed using a Pearson's Coefficient test to determine the significance and directionality of associations.

Chapter 4: Results

Fifteen chaplains participated in this study. Seven chaplains were assigned to the intervention group that had received CBCT and CCSH training. Eight chaplains were assigned to the waitlist group and had received traditional CPE training. The study's sample characteristics are summarized in **Appendix A**. The study included 15 chaplains and 121 patients. Waitlist patients participated in 68 consults total with 67 patients, while intervention patients participated in 54 consults with 54 patients. There was one waitlist chaplain who encountered the same patient twice. Patients had an overall emotional tone score of 69.06 (sd= 20.29), denoting a low level of positivity. Patients had an overall mean Distress score of 5.86 (sd= 3.29). The study's psychological measures for the total sample are summarized in **Appendix B.**

Primary Findings

Independent t-tests were conducted to test mean differences between multiple categories of interest.

Summary Dimensions

Waitlist and Intervention chaplains did not differ significantly in mean word count (p= .94) or emotional tone (p= .44). However, it should be noted that the emotional tones of both waitlist (mean= 89.09, sd 12.89) and intervention chaplains (mean= 91.07, sd= 13.44) are both high in positivity (mean= 89.97, sd= 14.24).

Affect

Waitlist and Intervention chaplain groups did not significantly differ in the following LIWC categories: affect (p= .18), positive emotion (p= .017), negative emotion (p= .93), anxiety (p= .92), or sadness (.22). There was a significant difference in the anger word category, with waitlist chaplains using a significantly higher amount of anger words (mean= .11, sd= .22) than

intervention chaplains (mean= .03, sd= .05) (mean difference= .08, t= 3.00, p= .003). These results for LIWC affect categories are summarized in **Appendix C**.

Pronouns

Waitlist and Intervention chaplain groups did not significantly differ in the following LIWC categories: personal pronouns (p=.09), I (p=.23), We (p=.09), She/He (p=.68), They (p=.27). There was a significant difference in the overall pronoun category, with intervention chaplains using a significantly higher number of pronouns than waitlist chaplains (mean difference= 1.32, t= -2.42, p= .0016). Intervention chaplains also used a significantly higher amount of the "you" pronoun than waitlist chaplains (mean difference= .54, t= -2.13, p= .035). Impersonal pronoun usage was significantly higher in intervention chaplains than waitlist chaplains (mean difference= .64, t= -2.18, p= .03). These results for LIWC pronoun categories are summarized in **Appendix D**.

Pre-Consult Distress

Waitlist (mean= 5.51, sd= 3.48) and Intervention (mean= 6.27, sd= 3.01) group patients did not significantly differ in distress scores pre-consult (p= .20). These results for DT outcomes are summarized in **Appendix E.**

Post-Consult HADS

Patients had an overall mean HADS Anxiety score of 6.62 (sd= 4.89) and HADS Depression score of 5.08 (sd= 4.19). Waitlist (mean= 7.14, sd= 5.06) and Intervention (mean= 5.99, sd= 4.66) group patients did not significantly differ in mean HADS Anxiety score. Waitlist group patients did however score significantly higher in HADS Depression (mean= 5.89, sd= 5.06) than Intervention group patients (mean= 4.12, sd= 3.69) (mean difference= 1.77, t= 2.25, p= .02). These results for HADS outcomes are summarized in **Appendix E**.

Secondary Findings

Pearson's correlation tests were performed to examine the association between the chaplain and patient linguistic characteristics in waitlist and intervention chaplains.

Affect

A statistically significant positive association was found between waitlist patient and chaplain speech in the following LIWC categories: positive emotions ($r = .25$, $p < .05$), anxiety ($r = .38$, $p < .05$), and anger ($r = .44$, $p < .44$). Results suggest there was a statistically significantly association between intervention patient and chaplain speech in the following LIWC categories: affect ($r = .27$ $p < .05$), positive ($r = .34$, $p < .05$), negative ($r = .64$, $p < .05$), and anxiety ($r = .29$, $p < .05$). No significant associations were found between patient and chaplain speech in the affect category for the waitlist group. No significant associations were found between patient and chaplain speech in the anger and sadness categories in the intervention group. These results of the affect category associations are summarized in **Appendix F**.

Concern

Results suggest there is a statistically significant positive association between waitlist patient and chaplain speech in the following LIWC categories: leisure ($r = .45$ $p < .01$) and religion ($r = .42$ $p < .01$). No significant associations were found between work ($r = .22$), home ($r = .15$), money ($r = .21$), or death ($r = .09$) categories in the waitlist group. Results suggest there is a statistically significantly association between intervention patient and chaplain speech in the following LIWC categories: leisure ($r = .31$ $p < .05$), religion ($r = .75$ $p < .01$), and death ($r = .34$ $p < .01$). No significant associations were found between work ($r = .08$), home ($r = .21$), and money ($r = .10$). Results of the concern category associations are summarized in **Appendix G**.

Social

Results suggest there is a statistically significant positive association between patient and chaplain speech in the family category in both waitlist ($r = .31$, $p < .01$) and intervention chaplains ($r = .39$, $p < 0.01$). No significant associations were found in the overall social or friend category for the waitlist or intervention groups. Although not significant, it should be mentioned that in both the social and friend category, negative associations were seen in the waitlist group. These results of the social category associations are summarized in **Appendix H.**

Chapter 5: Discussion

The current study examined the differences in the linguistic characteristics of hospital chaplains who received cognitively based compassion training and learned to deliver compassion-centered spiritual health compared to those who did not. This study also examined the associations between hospital chaplains' linguistic behaviors and patient reported mental health. Results showed that hospital chaplains who received the intervention showed linguistic characteristics that favored pronoun usage, specifically impersonal pronouns, and you, more than their waitlist peers. Waitlist chaplains showed linguistic characteristics that favored anger words more than their intervention peers. While waitlist and intervention chaplain-patient speech showed about an equal amount of significant positive associations, the significant associations varied depending on LIWC category. Regarding patient mental health, it was found that while waitlist and intervention group patients did not significantly differ in HADS Anxiety scores, they did differ significantly in HADS Depression scores, with intervention patients reporting significantly lower depressive symptoms than waitlist patients after the consultation.

These findings suggest that the CBCT and CCSH intervention may impact chaplains' level of person-centered linguistic characteristics (e.g., usage of you and impersonal pronouns). These findings may be explained by CBCT and CCSH's focus on identifying and centering the needs of the patient through empathy, compassion, and identification. The findings also suggest that while the intervention may not significantly impact linguistic characteristics related to empathy or communication accommodation, it may impact that word categories and topics intervention chaplains choose to focus on (e.g., family, leisure, religion, and death) during consult sessions compared to their waitlist peers (e.g., family, leisure, and religion). These findings could potentially be explained by a variety of reasons. Firstly, these findings may

suggest that traditional CPE training covers many of the necessary skills and best practices for chaplains to already engage in empathy and communication accommodation for patients. These findings would also suggest that all chaplains are similar in empathetic and accommodation type linguistic characteristics and the chaplains are simply accommodating to their specific patient's different wants or needs.

Secondly, this may suggest that waitlist and intervention chaplains may focus on different topics of interest with their patients during consults. For example, the intervention includes lessons focused on cultivating concern and engaged compassion. These behaviors could potentially result in intervention chaplains engaging in taught behaviors such as reflection and empathetic concern that may manifest in a way where they are reflecting on patient's negative feelings while engaging in more affectionate talk (both categories of significance compared to waitlist chaplains). This could be a result of different components of the traditional and intervention training or could be a result of a difference in patient needs overall. Further research would need to be done to identify any potential differences in these behaviors.

There was no significant difference in DT scores between waitlist and intervention patients pre-consult. The significant difference in post-consult HADS Depression scores suggests that the intervention's impact resulted in intervention chaplains being more effective in reducing patient depression than their waitlist peers. The findings would also suggest that the intervention chaplains weren't more effective in reducing patient anxiety than their waitlist peers since the results lacked significance. The HADS-Anxiety results are especially interesting considering there was no significant difference in anxiety word usage and both intervention and waitlist chaplains and patients had significant associations in the anxiety category. This may suggest that since there were significant associations in anxiety word usage in both groups, but lack of

significant differences in HADS Anxiety scores, waitlist and intervention chaplains' linguistic characteristics resulted in similar effects on patient anxiety.

Something to note is that, although not significant, only waitlist chaplains were found to have significant correlations between their and patients' negative affect speech (**Table 5.1c**). Associations between waitlist chaplains and patient speech in both the social and friend subcategory were negative, suggesting slight divergence in speech characteristics. The reason for the potential divergence is unknown since the LIWC does not analyze or indicate contextual features.

Strengths and Limitations

This study has several limitations that warrant mentioning. First, while LIWC counts word frequencies it cannot account for the context of word usage between patient and chaplain. Therefore, there is a lack of information about how these words were used during chaplain consults. LIWC is be able to identify a variety of summary dimensions (e.g., emotional tone, clout, etc.), but it cannot identify the intent in which specific terms are used. For example, a characteristic of many of the chaplain consults was the repetition of patient words to validate their emotions and experience. However, LIWC is unable to identify if a chaplain repeating a negative emotion word a patient used is specifically being used.

Secondly, LIWC cannot interpret certain slang phrases and African American Vernacular English (AAVE) which was heavily present in chaplain consult transcripts. LIWC counts word frequencies through the usage of the LIWC 2015 dictionary, however, some terms or words may be used in a way that is different from their intended meaning but will fall under a "traditional" LIWC category (or not be counted at all). While some modifications were made to address this limitation, to uphold the integrity of the original transcript these changes were kept to a

minimum. For example, words such as “aight” (alright) and “runnin” (running) would be changed to be picked up by LIWC, but certain terms that may have a different meaning on a “common knowledge” level amongst the populations of interest could not be changed with the same level of confidence or consistency. Finally, the modification of the original chaplain consult session resulted in any speech, not from the patient or chaplain being removed. This results in transcripts where words are taken outside of their original context (e.g., patient talking to staff or visitor during consult) to be analyzed in what is meant to be a patient and chaplain only observation. Other limitations include the fact that there were no measures of HADS administered to patients pre-consult and the study included multiple transcribed observations from each individual chaplain in the study.

Although there are limitations, this study also has a variety of strengths. First, this is the first study of its kind examining CBCT and chaplain linguistic characteristics using LIWC. Secondly, this study included a large amount of data with 122 transcripts being used for LIWC and further data analysis. This allowed for a large amount of investigation and analysis within and between the waitlist and intervention groups.

Conclusion

The results of this study suggest that the intervention may increase person-centeredness in hospital chaplains. The results of this study also suggest the intervention positively impacts the depression symptoms of the patients intervention chaplains see. These findings would warrant further research into CBCT and CCSH as a more mainstream training method for hospital chaplains in the future. Future studies should involve qualitative analysis of chaplain and patient interactions to further investigate the impacts of CBCT and CCSH on chaplain speech characteristics when compared to their waitlist peers. Additional research into the use or

development of a more inclusive LIWC dictionary would also benefit not only this but also other linguistic and psychological research. This study found that CBCT and CCSH are viable training options for hospital chaplains alongside CPE training. Future research findings could greatly benefit the hospital chaplain educational system while also benefitting the mental health of the hospital patients they interact with.

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Appendices

Appendix A: *Sample Characteristics*

Category	Chaplain (N)	Consults (N)	Patients (N)
Waitlist	8	68	67
Intervention	7	54	54
Overall	15	122	121

Appendix B: *Descriptive Statistics of Psychological Measures*

Measure	N	Mean (SD)	Range [Min, Max]
Distress	120	5.86 (3.29)	10 [0, 10]
HADS Anxiety	108	6.62 (4.89)	18 [0, 18]
HADS Depression	107	5.08 (4.19)	20 [0, 20]

**Note: HADS identifies scores as the following:*

0-7 = Normal, 8-10 = Borderline abnormal (borderline case), 11-21 = Abnormal (case)

Appendix C: t-test Results Comparing Waitlist and Intervention Chaplain Affect Use

Variable	**Waitlist Chaplains Mean (SD)**	**Intervention Chaplains Mean (SD)**	**Mean Difference**	***t***	***P* value (95% CI)**
Word Count (total)	1203.95 (800.82)	1213.03 (669.28)	9.08	-.06	0.94
Emotional Tone	89.09 (14.89)	91.07 (13.44)	1.98	-0.77	0.44
Affect	6.10 (1.69)	6.57(2.14)	0.47	-1.32	0.18
Positive	5.37 (1.69)	5.85 (2.08)	0.48	-1.37	0.17
Negative	0.69 (0.51)	0.70 (0.54)	0.008	-0.08	0.93
Anxiety	0.16 (0.23)	0.17 (0.19)	0.004	-0.10	0.91
Anger	0.11 (0.22)	0.03 (0.05)	0.08	3.00	0.003**
Sadness	0.18 (0.20)	0.25 (0.33)	0.06	-1.22	0.22

**Note: The LIWC mean values shown represent the average % of total numbers that belong to that specific category that were found in the transcript*

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

Appendix D: t-test Results Comparing Waitlist and Intervention Chaplain Pronoun Use

Variable	**Waitlist Chaplains Mean (SD)**	**Intervention Chaplains Mean (SD)**	**Mean Difference**	***t***	***P* value (95% CI)**
Pronouns	17.07 (3.36)	18.39 (2.65)	1.32	-2.42	0.016*
Personal Pronouns	11.48 (2.59)	12.16 (1.86)	0.68	-1.68	0.09
I	3.80 (1.04)	3.56 (1.12)	0.24	1.21	0.23
We	0.82 (0.79)	1.04 (0.67)	0.22	-1.66	0.09
You	5.58 (1.55)	6.13 (1.29)	0.54	-2.13	0.035*
She/He	0.79 (0.99)	0.85 (0.82)	0.07	-0.41	0.68
They	0.48 (0.44)	0.57 (0.43)	0.09	-1.08	0.27
Impersonal Pronouns	5.58 (1.67)	6.22 (1.55)	0.64	-2.18	0.03*

**Note: The LIWC mean values shown represent the average % of total numbers that belong to that specific category that were found in the transcript*

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

Appendix E**:** t-test Results Comparing Waitlist and Intervention Patient Psychological Scores

Variable	**Waitlist Patient Mean (SD)**	**Intervention Patient Mean (SD)**	**Mean Difference**	***t***	***P* value (95% CI)**
Pre-consult Distress	5.51 (3.48)	6.27 (3.01)	0.76	-1.28	0.20
Post-consult HADS					
Anxiety	7.14 (5.06)	5.99 (4.66)	1.15	1.22	0.22
Depression	5.89 (4.34)	4.12 (3.69)	1.77	2.25	0.02*

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

Appendix F

Appendix F1: Pearson's Correlation Among Waitlist Chaplains & Patient: Affect

	1	**2**	**3**	**4**	**5**	**6**
1. Affect	0.19	-	-	-	-	-
2. Positive	-	0.25*	-	-	-	-
3. Negative	-	-	0.22	-	-	-
4. Anxiety	-	-	-	0.38*	-	-
5. Anger	-	-	-	-	0.44*	-
6. Sadness	-	-	-	-	-	0.05

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

Appendix F2: Pearson's Correlation Among Intervention Chaplains & Patient: Affect

Category	**1**	**2**	**3**	**4**	**5**	**6**
1. Affect	0.27*	-	-	-	-	-
2. Positive	-	0.34*	-	-	-	-
3. Negative	-	-	0.64*	-	-	-
4. Anxiety	-	-	-	0.29*	-	-
5. Anger	-	-	-	-	0.17	-
6. Sadness	-	-	-	-	-	0.12

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

Appendix G

Appendix G1: Pearson's Correlation Among Waitlist Chaplains & Patient: Concern

	1	2	3	4	5	6
1.Work	0.22	-	-	-	-	-
2. Leisure	-	0.45**	-	-	-	-
3. Home	-	-	0.15	-	-	-
4. Money	-	-	-	0.21	-	-
5. Religion	-	-	-	-	0.42**	-
6. Death	-	-	-	-	-	0.09

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

Appendix G2: Pearson's Correlation Among Intervention Chaplains & Patient: Concern

	1	2	3	4	5	6
1.Work	.08	-	-	-	-	-
2. Leisure	-	0.31*	-	-	-	-
3. Home	-	-	0.21	-	-	-
4. Money	-	-	-	0.10	-	-
5. Religion	-	-	-	-	0.75**	-
6. Death	-	-	-	-	-	0.34**

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

Appendix H

Appendix H1: Pearson's Correlation Among Waitlist Chaplains & Patient Speech: Social

	Social	**Family**	**Friend**
Social	-0.15	-	-
Family	-	0.31**	-
Friend	-	-	-0.12

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

Appendix H2: Pearson's Correlation Among Intervention Chaplains & Patient Speech: Social

	Social	**Family**	**Friend**
Social	0.03	-	-
Family	-	0.39**	-
Friend	-		0.09

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