Distribution Agreement

In presenting this thesis as a partial fulfillment of the requirements for a degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis in whole or in part in all forms of media, now or hereafter now, including display on the World Wide Web. I understand that I may select some access restrictions as part of the online submission of this thesis. I understand I retain all ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles or books) all or part of this thesis.

Samuel Tercyak   April 10, 2024

The Role of Language in Healing: Exploring the Impact of Spiritual Health Consultations on Patient
Well-being and Recovery

by

Samuel Tercyak

Jennifer Mascaro

Advisor

Neuroscience and Behavioral Biology

Dr. Jennifer Mascaro

Advisor

Dr. Ellen Idler

Committee Member

Dr. Deanna Kaplan

Committee Member

2024

The Role of Language in Healing: Exploring the Impact of Spiritual Health Consultations on Patient
Well-being and Recovery

by

Samuel Tercyak

Jennifer Mascaro
Advisor

An abstract of
a thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Science with Honors

Neuroscience and Behavioral Biology

2024

Abstract

The Role of Language in Healing: Exploring the Impact of Spiritual Health Consultations on Patient Well-being and Recovery

By Samuel Tercyak

Objective: Spiritual health consultations offer patients a unique context in which to express themselves. The language patients use during these consults may provide insights into their emotions and recovery trajectory. The project aims to evaluate the interplay between patient language during a spiritual health consultation and patient-reported clinical outcomes after the consultation. We hypothesize a higher frequency of positive affect language will be associated with superior patient outcomes. We also hypothesize a higher frequency of patient language in alignment recovery will be associated with superior patient outcomes.

Methods: Qualitative shadowing sessions and quantitative sociodemographic and psychological assessments were used to evaluate the variables of interest. Data collection involved pre- and post-consult measures including indicators of distress, anxiety, and depression. Patient language during chaplain consults was analyzed using the Linguistic Inquiry and Word Count (LIWC) tool. Linguistic variables indicative of emotion and those in alignment with the Ecological Model of Recovery for Mental Health were selected for analysis. Statistical analyses were conducted using Spearman's rank-order correlation and Mann-Whitney U tests to explore the relationship between patient outcomes and linguistic expression.

Results: For the first hypothesis, analyses indicated a negative correlation between positive emotion and pre-consult distress, and a positive correlation between anxious emotion and pre-consult distress. Patients with clinically significant distress used fewer positive emotion words, while those with clinically significant anxiety used more anxious emotion words. Hypothesis 2 findings indicated correlations between post-consult anxiety and linguistic variables reflecting recovery themes of a positive sense of self, social determinants of health, and social connection. Similar associations were found for post-consult depression levels with positive self of self, empowerment, and social connection themes.

Conclusion: This study underscores the significant relationship between patient language during spiritual health consultations and subsequent mental health outcomes, emphasizing the therapeutic value of expressive communication. Findings highlight the role of verbal expression in facilitating emotional recovery and reveal how linguistic patterns in healthcare settings can reflect and influence psychological well-being. Prospective research is needed to evaluate the nature and full extent of these effects on patient well-being.

The Role of Language in Healing: Exploring the Impact of Spiritual Health Consultations on Patient
Well-being and Recovery

by

Samuel Tercyak

Jennifer Mascaro
Advisor

A thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Science with Honors

Neuroscience and Behavioral Biology

2024

Acknowledgments

The completion of this thesis was made possible through the invaluable support and guidance of several individuals, whose contributions have been fundamental to both the development and completion of this study.

My profound gratitude is extended to Dr. Jennifer Mascaro, whose mentorship was instrumental throughout the course of this project. Dr. Mascaro's dedication to scientific rigor and her depth of knowledge in the field have been inspiring and instrumental. Furthermore, my appreciation goes to my committee members Dr. Ellen Idler and Dr. Deanna Kaplan for their insightful feedback on earlier drafts of my work and for their encouragement and participation in my defense.

Special thanks also to Ishani Vayas, whose assistance with study design, data collection, and analysis was invaluable.

Table of Contents

Introduction

Psychobiology of Distress and Depression

Depression and distress are prevalent among patients in healthcare settings and can significantly hinder their recovery and quality of life (IsHak et al. 2017). Understanding the complex interactions between depression, neurobiology, and stress physiology is pivotal for developing effective therapeutic interventions, given these relationships can be bi-directional, where depression influences physiology and vice-versa.

Recent research has shed light on the psychological components that contribute to depression, such as negative thinking patterns, cognitive impairments, and maladaptive coping strategies (Remes et al. 2021). These elements play a critical role in the development and perpetuation of depressive states. Further, a growing body of evidence supports the biological basis of depression, pointing to neurochemical, neuroendocrine, and neurostructural abnormalities (Kalia 2005). Notably, structural changes in specific brain regions crucial in emotion and mood processing, such as the hippocampus, prefrontal cortex, amygdala, and anterior cingulate cortex, have been associated with depression and distress (Cristea et al. 2019). These findings highlight the need for a comprehensive approach to understanding depression that integrates insights from psychology, neurobiology, and stress physiology to better understand and treat depression.

Language and Emotion

Language also holds a critical role in understanding distress and depression, serving as a fundamental medium for expressing and interpreting one's emotional state. The concept gains further depth when viewed through the lens of the Conceptual Act Theory (CAT), a psychological constructionist framework

that poses that emotions are constructed in the moment (through interactions between sensory input, body sensations, and conceptual knowledge) with language serving as a necessary framework for the synthesis and communication of emotional experiences. According to CAT, language is not just expressive but constitutive of our emotional experiences, helping to organize and make sense of sensations in context (Lingquist et al., 2015). This perspective helps interpret research by Rude and colleagues (2003), who identified linguistic patterns associated with depression, such as the frequent use of first-person pronouns and negative emotion words in college students' writing. Their findings, from the CAT perspective, suggest that the way individuals talk about their feelings can offer insights into how they perceive and interpret their emotional states, including experiences of distress and depression. Analyzing these patterns can not only aid in the early detection and assessment of depression symptoms but also illuminates the foundational role language plays in the experience of emotions.

Additional studies have explored the relationship between mental health and language used on social media, focusing on detecting depression and other conditions through linguistic patterns on Twitter and Facebook. For example, Coppersmith and colleagues (2014) identified Twitter as a rich source for enhancing understanding and treatment of mental health conditions. The study demonstrates similar findings to Rude, namely a higher prevalence of first-person pronouns and negative emotion words for users publicly stating their diagnoses. This research uncovers significant behavioral and linguistic signals in Twitter data. Expanding on these findings, Eichstaedt et. al 2018 assessed the history of Facebook statuses posted by 683 patients, 114 of whom had a diagnosis of depression in their medical records. The study demonstrated that language used on Facebook could predict depression at the clinical level with a relatively high degree of accuracy, matching the accuracy of traditional screening surveys. Together, these studies highlight the power of language across various platforms and contexts in detecting and predicting mental health symptoms. Our paper will contribute by exploring the role of language in the therapeutic context of spiritual health consultations.

Importance of Holistic Care and Spiritual Health Clinicians

Spiritual Health Clinicians ([SHC] also called Healthcare chaplains) play an integral role in mitigating the effects of patient distress and depression. Previous investigation has suggested that chaplains play a significant role in patient care and satisfaction, with patients reporting chaplain visits as "highly important" and meeting their expectations exceptionally well (Marin et al. 2015). In addition, chaplains deliver these benefits to both religious and non-religious patients (Handzo et al., 2008).

As holistic patient care is increasingly acknowledged as a fundamental aspect in the alleviation of distress and depression, SHCs have become more crucial due to their role of providing both faith-based and supportive care (Timmins et al. 2018). Existing literature has identified factors such as perceived severity of illness, length of hospital stay, and older age to be linked to a higher demand for spiritual care, with those receiving spiritual care reporting improvements in quality of life (Kirchoff et al. 2021). In addition, SHC services may contribute to the important facilitation of end-of-life care decisions that align with patients' values and wishes (Flannelly et al. 2012). Further, in a digital diary method study, Idler et al. (2015) found chaplains have conversations on a wide variety of topics, including discussions of recovery and finding meaning in life. Lastly, Mascaro et al. (2022) revealed that the language used by chaplains matters; consultations characterized by compassionate communication, as evidenced by the chaplain's linguistic style, are associated with a decrease in depressive symptoms following the consultation. In sum, these findings highlight the significance and complexity of SHCs in meeting patient needs.

Recovery Model

Spiritual health consultations also offer patients an environment in which to express themselves in unique ways (Pesut et al., 2016), including potentially discussing the resources and support systems that are important in aiding their recovery. This dialogue is central to the Ecological Model of Recovery (EMR), a

comprehensive framework used to understand the process of mental health recovery that bridges internal conditions, such as attitudes and experiences, and external conditions, including the circumstances, events, and policies that facilitate recovery (Dell et al., 2021). According to the model, these elements interact reciprocally, meaning that as one improves, it has the potential to positively affect others, further enhancing the recovery process (Jacobson et al., 2001). The model is particularly relevant to SHC, where discussions can significantly contribute to the conditions necessary for recovery.

The EMR model identifies five themes central to the mental health recovery framework. First, recovery is an ongoing process that requires developing a positive sense of self. Second, recovery necessitates access to basic resources in accordance with the social determinants of health model. Third, recovery involves a sense of personal control and responsibility. Fourth, recovery is dependent on social support and connection. Finally, recovery requires an individual to accept their illness as a part of themselves while learning to manage it.

We propose that SHC services, by encouraging patients to articulate their experiences across various domains, play an essential role in the paradigm of recovery. They offer a unique perspective for delving into the realms that individuals navigate to articulate and address their physical, emotional, and spiritual needs, thus making a significant contribution to a comprehensive recovery journey. Consequently, analyzing the specific language choices made by patients in conversations with chaplains may reveal broader aspects of patient recovery, highlighting the importance of verbal expression in understanding and facilitating the healing process.

In sum, the literature makes clear the multifaceted nature of language and depression. From facilitating the expression and interpretation of emotional states to identifying patterns and tailoring treatment, language serves as an indispensable tool in the path to mental health recovery. The ongoing exploration of linguistic patterns continues to enrich our understanding of mental health, offering promising avenues for

research, early detection, and personalized care in the field of psychology and beyond. By examining the connections between the psychobiology of depression, patient language during the therapeutic process, and mental health recovery, we can gain insights into how language reflects and/or influences patients' psychological states. Our interdisciplinary approach underscores the importance of considering the linguistic aspects of patient care as part of a holistic strategy to address the interplay of psychological, biological, and social factors in depression and distress.

Research Question

The project aims to evaluate the interplay between patient language during a spiritual health consultation and patient-reported clinical outcomes after the consultation.

First, we aim to determine the relationship between the frequency of patient-employed affect language and patient-reported mental health outcomes. We hypothesize a higher frequency of positive affect language, as measured by frequency of positive emotion words, will be associated with lower pre-consult distress, and post-consult anxiety and depression after controlling for pre-consult distress levels. In addition, a higher frequency of negative affect language, as measured by higher negative anxiety, anger, and sadness language, will be associated with higher pre-consult distress, and post-consult anxiety and depression after controlling for pre-consult distress levels.

Next, we aim to investigate how discussions around resources are associated with patient-reported therapeutic processes and mental health outcomes post-consultation. The goal of this aim is to uncover insights into the dynamics of resource exchange and identification in therapeutic settings. We hypothesize a higher frequency of patient language in alignment with the five themes of the EMR will be associated with lower patient-reported anxiety, and depression, and with superior patient feelings about the consult.

Materials and Methods

Study Overview

Data for the thesis project were collected from two distinct investigations, referred to as the PEACE study and the T Denny Sanford (TDS) study. These studies aim to investigate the linguistic behavior of both chaplains and patients and how interactions subsequently affect outcomes post-consult. For the project, only patient language and outcomes will be analyzed. Data collection for the PEACE study occurred from July 2018 to March 2020. Data collection for the TDS study occurred from September 2022 to May 2023.

Participants

Chaplains included in the study were SHC residents enrolled in an Association for Clinical Pastoral Education program. Residents were recruited via email and presentations by the study team, and participation was voluntary. These chaplains are affiliated with six distinct Emory University hospitals: Midtown, Decatur, Hillandale, Wesley Woods, and John's Creek.

Patients included in the study were selected based on the SHC residents' schedules. Members of the research team conducted chaplain shadows, during which the researchers followed chaplains during their everyday consults. Only patients over 18 years of age, English-speaking, and receiving care in an inpatient unit were permitted to take part in the study. Patients were excluded if they were determined to be cognitively impaired by a member of the research team or if they had COVID-19. Before the chaplain consult, a member of the research team obtained informed consent from each patient.

Together, the data include a cohort of 35 spiritual health clinicians and 212 patients varying in gender, age, and clinical diagnosis.

Methods

The research methodologies implemented in the PEACE and TDS studies were fundamentally similar, yet there were modifications introduced in the TDS study to address specific objectives, leading to some differences in measures specific to each investigation. In our project, the primary emphasis will be on analyzing the measures that were consistently applied across all participants in both studies, irrespective of their allocation to either study.

During a shadowing session, a research team member accompanies a SHC during their regular rounds. Before the chaplain enters the patient's room, the researcher explains the project to the patient and seeks informed consent. Upon consent, the patient provides pre-consultation measures. Subsequently, the chaplain, equipped with an audio recorder, proceeds with the consultation. Afterward, the researcher returns to gather post-consultation data from the patient. Should a patient decline consent, the consultation still occurs without audio recording, and no data is collected.

Sociodemographic Measures: Information extracted from electronic medical records includes variables such as age, sex, race, ethnicity, and marital status. Participants were between the ages of 20 and 99 years of age (M = 60.26, SD = 18.18) (Table 2).

Audio Recordings: Patient-chaplain audio recordings were transcribed verbatim. Following initial transcription, documents were quality-checked by a second member of the research team. For the study, transcripts were prepared to include only patient language.

Pre-Consult Measures:

National Comprehensive Cancer Network Distress Thermometer (NCNN-DT)

The NCNN-DT is a succinct tool designed for rapid screening of psychological distress in cancer patients. It prompts individuals to rate their distress on a scale from 0 ("no distress") to 10 ("extreme distress"), with scores of 4 or more indicating clinical levels of distress (Donovan et al. 2013). Its simplicity and effectiveness in distinguishing between different levels of distress make it a valuable resource in clinical settings. In addition, the DT has been found to compare favorably with longer measures used to screen for distress (Jacobsen et al., 2005).

Post-Consult Measures:

Hospital Anxiety and Depressive Scale (HADS)

The HADS is a widely used diagnostic tool designed to identify and measure the levels of anxiety and depression among patients in hospital settings. It consists of 14 Likert-scale items, with seven related to anxiety (HADS-A) and seven related to depression (HADS-D), allowing healthcare professionals to assess these conditions separately or in combination (Snaith 2003). HADS-A includes prompts such as "I feel tense or 'wound up'" and "I get sudden feelings of panic" while HADS-D includes "I feel as if I am slowed down" and "I have lost interest in my appearance". Several of the items require reverse scoring, which was accounted for during data processing and management. HADS anxiety and depression subscale scores above 8 indicate mild symptoms of anxiety or depression, while scores above 10 indicate

moderate to severe anxiety or depression (need citation(s)). For our analyses, we chose the more stringent cutoff of 10 to be indicative of clinically significant depression and anxiety. Cronbach's α indicated good internal reliability, α = 0.83 for anxiety and α = 0.77 for depression.

<u>Lothian Patient-Reported Outcome Measure (PROM)</u>

The PROM consists of 18 Likert-scale items evaluating the hospitalized patients' feelings about pastoral care visits and their current state, including questions about spirituality (Snowden et al. 2021). Patients were asked about their feelings during the chaplain meeting ("During my meeting with the chaplain I felt my situation was understood and acknowledged"), after the meeting ("after meeting with the chaplain I felt I could be honest with myself about how I was really feeling"), and about statements that describe them now ("I feel a need to experience love and belonging"). Cronbach's α indicated good internal reliability for current and after subscales, α = .680 for current and α = .776 for after. For the during subscale, the α = 0.591 indicating unacceptable scale reliability. The root of the issue was the second item "We focused on decisions about my/my relative's/friend's health care." After evaluating the prompt, the research team decided to remove the item from data analysis due to both the low α value and the inconsistent content of the item. Following removal, Cronbach's α indicated good reliability, α = 0.73.

<u>Linguistic Inquiry and Word Count (LIWC)</u>

LIWC was employed to quantitatively analyze the content of each transcript. Developed by James W. Pennebaker, LIWC operates by analyzing text and counting the occurrences of specific words and phrases associated with an internal dictionary of various linguistic, psychological, and emotional categories. In addition to frequency counts of each category, LIWC calculates 4 global scores ranging from 1-99: analytical thinking, clout, authenticity, and emotional tone (Pennebaker et al. 2015). The analytical

thinking score measures formal and logical thinking. High scores correlate with more formal language, while lower scores suggest personable language. The clout score measures relative social status or confidence reflected in their language, with high scores indicating higher confidence. The authenticity score measures unfiltered speech, reflecting self-monitoring levels, not deception. It contrasts prepared speech (low score) with honest conversation between close friends (high score). Lastly, the tone score measures how positive the tone of the language is, with scores over 50 indicating a more positive tone.

For Aim 1, we limited our analysis to linguistic categories related to emotion, namely (1) positive emotion language (e.g. "happiness", "enthusiasm"); (2) negative emotion language (e.g "terrible", "gloom"): anxious emotion words (e.g. "panic", "distraught"), anger emotion words (e.g. "argue", "violent"), and sad emotion words (e.g. "sob", "heartbreak"). The rationale for selecting emotion variables over tone variables stems from recent revisions to LIWC to better differentiate between sentiment and emotion. Sentiment (reflected in the tone_pos and tone_neg categories) encompasses a broader range of expressions, including both emotion words and related concepts, without necessarily implying a specific emotional state (Boyd et al., 2022). Tone is suitable for analyzing overall positive or negative attitudes but less precise for understanding the emotional states of individuals. Emotion variables (positive, negative, anxious, anger, sad), however, are designed to capture more specific emotional expressions and states, making them more appropriate for our analyses.

For Aim 2, LIWC variables were matched up with respective aspects of the EMR recovery model in order to evaluate the relationship between recovery language and patient-reported anxiety, depression, and feelings about the consult (Table 2). Linguistic variables relevant to themes of the recovery model were those related to (1) positive sense of self: positive emotion language (e.g. "happiness", "enthusiasm") and clout (measures the degree of influence or confidence exhibited in speech); (2) social determinants of health: home (e.g. "kitchen", "bed"), health (e.g. "clinic", "pill"), lifestyle (e.g. "expenses", "hobby"), and religion (e.g. "prayer", "temple"; (3) empowerment: differ (e.g. "comparative", "regardless"),

achievement (e.g. "leading", "productive"), and power (e.g. "control", "management"); (4) social connection: prosocial (e.g. "friendship", "support"), affiliation (e.g. "belonging", "hugs"), and "we" (e.g. "our", "lets"); (5) acceptance and insight: insight (e.g. "understand", "reflect"), tentative (e.g. "maybe", "guess"), discrepancy (e.g. "hopefully", "aspire").

Table 1: LIWC and EMR Match-Up

Theme	LIWC Variables
1: Positive Sense of Self	*Positive Emotion*
	Clout
2: Social Determinants of Health	*Home*
	Health
	Lifestyle
	Religion
3: Empowerment	*Differ*
	Achieve
	Power
4: Social Connection	*Prosocial*
	Affiliation
	We
5: Acceptance and Insight	*Mental*
	Insight
	Tentative
	Discrepancy

Statistical Analyses

The data were analyzed using Statistical Package for the Social Sciences (SPSS) software, version 29.0.20. Study-specific data from both studies were compiled into one dataset. The process involved verification of measures against the scanned patient-reported outcomes to guarantee the integrity of the data collected. Summed scores for each measure were calculated by combining values for individual variables, with consideration given to reverse scoring to maintain the validity of interpretation. The data underwent Estimation Maximization (EM) analysis (Graham 2009). EM was only performed if missing data did not exceed 5% of the total dataset and with a non-significant Little's MCAR test indicating that missing data were missing at random. Finally, the assumption of distribution normality was assessed for all variables using the Shapiro-Wilk test.

Due to the non-normal distribution of the data relevant to Aim 1, we conducted Spearman's rank-order correlation analyses to determine if patient emotion language was correlated with patient-reported pre-consult distress, and post-consult anxiety and depression. In order to control for pre-consult levels of distress, we also conducted a Spearman's rank-order correlation analysis for depression and anxiety, regressed on pre-consult distress. Following Spearman's rank-order correlations, Mann-Whitney U tests were performed to evaluate whether patients reporting clinically significant distress, anxiety, or depression had lower positive emotion and higher negative, anxiety, anger, and sadness emotion language.

Due to the non-normal distribution of the data relevant to Aim 2, we conducted Spearman's rank-order correlation analyses to determine if our identified EMR linguistic variables were associated with pre-consult distress, post-consult anxiety/depression, and PROM. In order to control for pre-consult levels of distress, we also conducted a Spearman's rank-order correlation analysis for depression and anxiety, regressed on pre-consult distress. Following Spearman's rank-order correlations, Mann-Whitney U tests were performed to evaluate whether patients reporting clinically significant distress, anxiety, or depression had differing EMR linguistic counts.

Results

Demographics

Table 2: Socio-demographic Statistics

Demographic	Frequency (%)
Participant sex	
Female	115 (54.2)
Male	90 (42.5)
Unknown	7 (3.3)
Participant race	
Asian	5 (2.3)
Black	90 (42.5)
White	101 (47.2)
Unknown	16 (8.0)
Participant ethnicity	
Not Hispanic, Latino	186 (87.7)
Hispanic Latino	9 (4.2)
Unknown	17 (8.0)
Participant marital status	
Single	68 (32.1)
Married	84 (39.6)
Divorced	22 (10.4)
Separate	2 (0.9)
Widowed	24 (11.3)
Unknown	12 (5.6)

Table 3: Outcome Descriptives

Measure	Mean (SD)	Range
Session Length (minutes)	16.99 (12.72)	1.75 - 80.35
Distress Thermometer	5.22 (3.32)	0 - 10
Raw HADS Anxiety	6.71 (5.76)	0 - 20
Raw HADS Depression	5.08	0-20

Table 4: LIWC Descriptives

LIWC Measure	Mean (SD)	Range
Positive Emotion	1.04 (1.04)	0 - 9.62
Negative Emotion	0.59 (0.55)	0 - 4.00
Anxious Emotion	0.18 (0.39)	0 - 4.00
Anger Emotion	0.05 (0.11)	0 - 0.69
Sadness Emotion	0.68 (0.12)	0 - 0.96
Clout	34.91 (25.88)	1 - 99
Home	0.32 (0.34)	0 - 2.33
Health	1.14 (0.88)	0 - 4.68
Lifestyle	2.82 (2.09)	0 - 25.00
Religion	1.14 (1.30)	0 - 8.00
Differ	3.23 (1.27)	0 - 8.00
Achieve	0.78 (0.61)	0 - 3.97
Power	0.47 (0.45)	0 - 3.73

Prosocial	1.18 (1.73)	0 - 13.04
Affiliation	1.95 (1.27)	0 - 8.70
We	0.79 (0.78)	0 - 4.17
Mental	0.04 (0.12)	0 - 0.73
Insight	3.21 (1.55)	0 - 8.79
Tentative	2.14 (1.14)	0 - 6.67
Discrepancy	1.95 (1.03)	0 - 8.82

Aim 1

Distress

A Spearman's rho test revealed positive emotion and pre-consult distress were negatively correlated, r(195) = -.164, *p* = .022. Anxious emotion and pre-consult distress were positively correlated , r(195) = .155, *p* = .030.

A Mann-Whitney U test was performed to evaluate whether patients reporting clinically significant distress had lower positive emotion and higher negative, anxiety, anger, and sadness emotion language. The results indicate that patients meeting clinically relevant levels of distress used significantly fewer positive emotion words than non-distressed patients, *z* = -2.64, *p* = .008. No other analyses reached the level of significance.

Anxiety

After controlling for pre-consult distress using standardized residuals, anxiety language and anxiety were correlated, r(198) = -.160, p = .025.

A Mann-Whitney U test was performed to evaluate whether patients reporting clinically significant anxiety had lower positive emotion and higher negative, anxiety, anger, sadness emotion language. The results indicate that patients meeting clinically relevant levels of anxiety used more anxiety language than non-anxious patients, z = -2.85, p = .004. No other analyses reached the level of significance.

Depression

After controlling for pre-consult distress, no analyses reached the level of significance.

A Mann-Whitney U test was performed to evaluate whether patients reporting clinically significant depression use less positive emotion language and more negative, anxiety, anger, and sadness language. The results indicate that patients meeting clinically accepted relevant levels of depression used more anger language than non-depressed patients, z = -2.01, p = .05. No other analyses reached the level of significance.

Table 2: Aim 1 Correlations Between Emotion Language and Outcomes

Hypothesis 2

The relationship between LIWC variables relevant to the EMR model and patient depression, anxiety, and perceived benefit are shown in **Table #3**.

After controlling for pre-consult distress, a Spearman's rho test revealed post-consult anxiety levels were associated with "clout" scores, r(198) = -.160, *p* = .045 (Theme 1, [positive sense of self] of EMR) "lifestyle" language, r(195) = -.148, *p* = .039 (Theme 2, [social determinants] of EMR), and "religion" language, r(195) = -.151, *p* = .035 (Theme 4, [social connection] of EMR).

After controlling for pre-consult distress, a Spearman's rho test revealed post-consult depression levels were associated with "clout" scores, r(198) = -.160, *p* = .025 (Theme 1, [positive sense of self] of EMR) , "differ" language (Theme 3, [empowerment] of EMR), and "affiliation" , r(195) = -.169, *p* = .019, and "we" language, r(195) = -.205, *p* = .004 (Theme 4, [social connection] of EMR).

Lastly, "affiliation" and feeling during the consult were correlated, r(184) = -.202, *p* = .006, (Theme 4, [social connection] of EMR).

Table 3: Aim 2 Correlations Between EMR and Outcomes

Correlations				Post Anxiety Residual	Post Depression Residual	Feelings During	Feelings After
Spearman's rho	1: Positive Sense of Self	Positive Emotion	Correlation Coefficient	-0.134	-0.064	-0.066	0.049
		Clout	Correlation Coefficient	-.144*	-.160*	-0.009	0.102
	2: Social Determinants of Health	Home	Correlation Coefficient	-0.037	-0.043	-0.004	-0.016
		Health	Correlation Coefficient	0.062	0.084	0.127	0.044
		Lifestyle	Correlation Coefficient	-.148*	-0.091	-0.012	0.057
		Religion	Correlation Coefficient	-.151*	-0.096	0.053	0.030
	3: Empowerment	Differ	Correlation Coefficient	0.097	.160*	0.112	0.002
		Achieve	Correlation Coefficient	0.078	-0.045	-0.031	-0.010
		Power	Correlation Coefficient	-0.045	0.064	0.101	-0.008
	4: Social Connection	Prosocial	Correlation Coefficient	0.098	-0.012	0.095	0.007
		Affiliation	Correlation Coefficient	-0.126	-.169*	-.202**	0.041
		We	Correlation Coefficient	-0.103	-.205**	-0.099	0.107
	5: Acceptance and Insight	Mental	Correlation Coefficient	0.100	0.091	0.137	0.008
		Insight	Correlation Coefficient	0.048	0.096	0.074	-0.119
		Tentative	Correlation Coefficient	0.096	0.120	-0.020	-0.123
		Discrepancy	Correlation Coefficient	0.122	0.037	-0.055	-0.033

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

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

Anxiety

A Mann-Whitney U test was performed to evaluate whether patients reporting clinically significant anxiety had differing linguistic variable scores in alignment with each theme of the recovery model. The results indicate that patients meeting clinically relevant levels of anxiety had lower clout ($z = -2.10$, $p = .036$), home ($z = -2.06$, $p = .040$), and lifestyle ($z = -2.00$, $p = .046$) No other analyses reached the level of significance.

Depression

A Mann-Whitney U test was performed to evaluate whether patients reporting clinically significant depression had differing linguistic variable scores in alignment with each theme of the recovery model. The results indicate that patients meeting clinically accepted levels of depression had lower clout scores (z

= -2.45, *p* = .014), and more health (*z* = -2.26, *p* = .024), and differ (*z* = -2.31, *p* = .021) language. No other analyses reached the level of significance.

Discussion

This study explores the relationship between patient language during spiritual health consultations and subsequent mental health outcomes, providing insight into the therapeutic potential of spiritual health consultations and patient discussions, using the framework of the Ecological Model of Recovery. With respect to our first aim of determining the relationship between the frequency of patients' affect language and patient-reported mental health outcomes, we found that distress, depression, and anxiety are significantly associated with patient language in healthcare settings. These consultations offer a distinct platform for patients to articulate their experiences, leveraging language as a vital tool for expressing and interpreting emotional states, which is essential for understanding and facilitating recovery. Our research posited that patient linguistic expression during the consult would correlate with patient-reported pre-consult distress as well as anxiety and depression after the consult. Specifically, we found that levels of pre-consult distress were correlated with both positive and anxious emotion, but not with negative, sadness, or anger emotion. Additionally, after adjusting for pre-consult distress, post-consult anxiety levels were correlated with anxiety emotion language.

The inverse relationship between pre-consult distress and positive emotion may underscore the impact of emotional state on patients' ability to convey positivity during SHC. Similarly, the direct correlation with anxious emotion may highlight the burden of distress on patients. In addition, these findings shed light on the emotional complexity of the patient experience, where individuals must decide whether to openly share their emotions with healthcare providers. These relationships may illustrate the exacerbating effect of distress on linguistic patterns.

Traditionally, expressing emotions is considered therapeutic; a study on the benefits of expressive writing revealed expressive writing was associated with lowered levels of distress (Wong et al., 2009). Despite this, the willingness of patients to share their emotions openly can be hindered by various factors. Heyman et al. (2020) found a discrepancy between patients' experience and their expression of unpleasant emotions, revealing patients often refrain from expressing negative emotions when felt and might express them without truly experiencing them at other times. This research, when combined with our anxiety finding, could suggest that discussing anxiety might, paradoxically, intensify the feeling, shedding light on a double-edged sword where the act of verbalizing emotions, while potentially aiding in their identification by providers, might also aggravate the patient's emotional state.

Our observation that post-consult anxiety levels correlated with anxiety emotion language after controlling for pre-consult distress is in line with a recent study on COVID-19. The study asked participants to indicate their emotional responses to the pandemic using self-report measures and written text, revealing significant correlations between anxiety language and reported anxiety (Kleinberg et al., 2020). Further, these findings align well with CAT, suggesting that linguistic expressions (anxiety in this case) can act as both a mirror and mold for emotions like anxiety. The proposed dual role of language underscores its capacity to either reinforce or alleviate anxiety symptoms based on how emotions are conceptualized or verbalized. Together, evidence from Aim 1 elucidates the nuanced function of SHC in facilitating emotional discussions.

With respect to our second aim of offering insights into the dynamics of resource exchange and identification in a therapeutic setting, we used the EMR as an exploratory framework for understanding how resource-centric discussion during SHC can aid in patient well-being and offer insights into patients' own perception of the therapeutic process. Central to the EMR are five themes that underscore the

recovery journey: (1) a positive sense of self, (2) access to social determinants of health, (3) a sense of personal control, (4) social support and connection, and (5) acceptance and insight of illness. Our research posited that patient linguistic expression consistent with the five themes of the EMR would be associated with pre-consult distress as well as anxiety, depression, and feelings about the consult following SHC consultation. Specifically, we found that after adjusting for pre-consult distress, higher "clout" scores, and higher "differ", "affiliation", and "we" language, were correlated with lower depression. Further, higher "clout", "lifestyle", and "religion" were associated with lower anxiety after controlling for pre-consult distress. Lastly, "affiliation" was negatively associated with feelings about the consult.

Distress, Anxiety, and Depression

Our observations that positive emotion language inversely relates to pre-consult distress, and that "clout" inversely relates to both depression and anxiety, are in alignment with Theme 1 of the EMR. The replication of results regarding positive emotion language across different sections of the study, due to the utilization of the same correlation tests, suggests a consistent relationship, though introduces the potential for ambiguity in interpreting these findings solely within the EMR framework. Despite this, the well-documented role of positive affect in achieving subjective well-being supports its inclusion in our model (Metler et al., 2015). Similarly, "clout" has been identified as reflective of individuals' confidence, motivations, and needs, further supporting its relevance to our findings (Syah et al., 2019). These observations underscore the intricate link between language use in SHC and key psychological outcomes, emphasizing the potential of linguistic analysis in uncovering the dynamics of emotional recovery and well-being.

Our finding that "lifestyle" and "religion" language were negatively correlated with anxiety and depression aligns with Theme 2, which highlights the importance of access to basic resources and the role of social determinants in shaping health outcomes and the recovery process. The negative correlation

indicates that discussions around lifestyle and religious practices during spiritual health consultations may indicate structure and meaning in life that supports patient well-being. A recent study found that engagement in hobbies across 16 nations consistently reduced depressive symptoms (Mak et al., 2023), one notable area of the "lifestyle" category. In addition, as religious participation contributes to the social determinants of health model (Idler et al., 2017), our findings highlight the potential role religious discussion may play in providing a sense of order, purpose, and comfort, thereby contributing positively to the emotional and spiritual dimensions of recovery.

Our observations that patients use of "differ" language, indicative of differentiation, disagreement, or distinction, interestingly correlates with higher levels of depression, presenting a nuanced perspective within Theme 3 of the EMR. While we had expected this correlation to be negative, posing that individuals who engage in expressing their unique perspectives and disagreements would feel enhanced feelings of agency, this finding may reflect underlying struggles with conflict or a heightened awareness of discrepancies between one's current state and desired emotional or situational outcomes. Further, it could indicate absolutist thinking, a cognitive distortion where individuals use all-or-nothing language. This type of language has been found in elevated levels in suicidal ideation forums, possibly indicating its relevance as an indicator of affective disorders (Al-Mosaiwi et al., 2018). This indicates the need for additional research to better inform our interpretation of the finding.

Our finding that "affiliation" and "we" language are negatively associated with depression is in line with Theme 4 of EMR which underscores the necessity of social support and connection in the recovery journey. These categories are indicative of language that emphasizes communal support, pivotal aspects of the healing process. A large body of research supports that affiliation is associated with superior mental health outcomes. In addition, social ties have even been identified as a resource that should be both protected and promoted (Umberson et al., 2011). While "I-talk" (self-referential language) has been linked to depression and negative affect (Tackman et al., 2019), research supports the potential of "we"

language as indicative of the individuals relying on others for support as well as being associated with superior quality of life outcomes (Cohn et al., 2004, Hallgren et al., 2015, Orvell et al., 2021).

None of the language variables associated with Theme 5, which focuses on acceptance and insight, were significantly associated with depression or anxiety after controlling for pre-consult distress. This could be due to the complexity of the theme, which may require more rigorous linguistic analysis beyond frequency counts.

While many of the selected variables did not demonstrate a significant correlation with patient outcomes, the variables that did correlate offer valuable insights into the potential of the EMR as a framework for mental health recovery. These findings underscore the role of SHC in discussing patient resources and illuminate the nuanced relationship between language and psychological well-being. The correlations observed in language relating to sense of self, social determinants, empowerment, and social support highlight the influential role of verbal expression in the recovery process. Despite the limited scope of significant correlations, our exploration supports the EMR's relevance and underscores the importance of incorporating holistic communication strategies within therapeutic contexts to foster a comprehensive recovery journey.

Patient-Reported Outcome Measure

Our observation that "affiliation" was negatively associated with patient-reported feelings regarding the consult presents an interesting point for consideration. The finding may suggest that while social connections and a sense of belonging are generally viewed as supportive elements in healthcare contexts, their correlation with how patients perceive the effectiveness or satisfaction of their consultations could be more complex. It raises questions about the dynamics of social relationships and their impact on patient expectations and experiences within therapeutic settings. This might reflect a different aspect of

patient engagement, where value placed on communal ties does translate to positive perceptions of specific healthcare interactions.

Clinical Significance

Lastly, we revealed findings of clinical significance, notably that patients meeting clinically accepted levels of distress had lower positive emotion scores than non-distressed patients, patients meeting clinically accepted levels of anxiety had higher anxiety emotion scores than non-anxious patients, and patients meeting clinically accepted levels of depression had higher anger emotion scores than non-depressed patients. In addition, we found that patients meeting clinically accepted levels of anxiety had significantly lower "clout" scores, and used less "home", and "lifestyle" language and that patients meeting clinically accepted levels of depression had lower "clout" scores, and used more "health" and "differ" language. Together, these outcomes underscore the real-life importance of our study, providing insights into how mental health conditions affect individual perceptions and interactions in the clinical setting.

Limitations and Future Directions

A primary limitation of our study was the lack of consistent measures for anxiety, depression, and distress before and after the consultations. The decision not to measure anxiety or depression pre-consult and to omit distress measurements post-consult for all participants was made to reduce patient burden and minimize disruption to chaplain services. Despite these considerations, uniform pre- and post-consult assessments would have yielded more robust insights into the effects of the consultations. Ideally, future studies would employ consistent measures at both time points to enhance validity.

An additional limitation of our study was the issue of conducting multiple statistical tests. The problem of multiple comparisons can inflate the possibility of erroneously reporting a significant finding. To mitigate the risk, future research should adopt a more stringent p-value than the conventional 0.05 value to control the error rate and maintain statistical integrity. Methods could include the Bonferroni correction to adjust p-values accordingly. Our methodical approach also included controlling for pre-consult distress which, despite its thoroughness, inadvertently nullified many of our significant findings. This outcome suggests potential areas for further investigation: it may underscore the pivotal role of pre-consult distress in influencing patient communication, or it might reveal an intrinsic connection between distress, anxiety, and depression.

Furthermore, our reliance on transcriptions of consultations may not fully encapsulate the nuances of live interactions. Additionally, the study's correlational design limits our ability to infer causality. Future studies could benefit from adopting longitudinal designs that explore the causal relationships between language used in consultations and subsequent mental health outcomes.

Finally, enhancing our use of the LIWC tool to operationalize variables within the EMR represents another area for improvement. Recent LIWC features, such as the Contextualizer and Meaning Extractor, offer advanced methods for analyzing language's psychological and emotional dimensions. For instance, the Contextualizer has made clear the impact of physicians' gain-loss framing on patient treatment decisions, finding a decrease in the use of loss-related keywords in contexts recommending immediate treatment (Fridman et al., 2020). The Meaning Extractor facilitates the emergence of themes from statistical analysis (Markowitz, 2021). Utilizing these advancements could refine our understanding of the consultation content, aligning more closely with the EMR's objectives. These tools would empower us to go beyond the surface of patient conversations, making clear the importance of context in exploring language. In our current study, for example, might misinterpret a patient's mention of a distressed friend

as an expression of a patient's own sadness, overlooking the relational context of the discussion. By using these tools, we would have a clearer picture of patient linguistic expression. Moreover, incorporating both linguistic and non-linguistic variables, such as emotional and informational support, as done in related research (Yang et al., 2023), could enrich future studies' ability to delineate the EMR framework more comprehensively.

Works Cited

1. Al-Mosaiwi, M., & Johnstone, T. (2018). In an Absolute State: Elevated Use of Absolutist Words Is a Marker Specific to Anxiety, Depression, and Suicidal Ideation. *Clinical Psychological Science*, *6*(4), 529–542. https://doi.org/10.1177/2167702617747074

2. Apriyanto, S., Syah, T. A., & Nurhayaty, A. (2021). Student's Prevailing, Confidence, and Drives: Computerized Text Analysis on Self-Description Text. *Journal of Physics: Conference Series*, *1764*(1), 012140. https://doi.org/10.1088/1742-6596/1764/1/012140

3. Boyd, R., Ashokkumar, A., Seraj, S., & Pennebaker, J. (2022). *The Development and Psychometric Properties of LIWC-22*.

4. Cohn, M. A., Mehl, M. R., & Pennebaker, J. W. (2004). Linguistic Markers of Psychological Change Surrounding September 11, 2001. *Psychological Science*, *15*(10), 687–693. https://doi.org/10.1111/j.0956-7976.2004.00741.x

5. Constand, M. K., MacDermid, J. C., Dal Bello-Haas, V., & Law, M. (2014). Scoping review of patient-centered care approaches in healthcare. *BMC Health Services Research*, *14*(1). https://doi.org/10.1186/1472-6963-14-271

6. Coppersmith, G., Dredze, M., & Harman, C. (2014). *Workshop on Computational Linguistics and Clinical Psychology: From Linguistic Signal to Clinical Quantifying Mental Health Signals in Twitter*. Retrieved from https://aclanthology.org/W14-3207.pdf

7. Cristea, I. A., Karyotaki, E., Hollon, S. D., Cuijpers, P., & Gentili, C. (2019). Biological markers evaluated in randomized trials of psychological treatments for depression: a systematic review and meta-analysis. *Neuroscience & Biobehavioral Reviews*, *101*, 32–44. https://doi.org/10.1016/j.neubiorev.2019.03.022

8. Dell, N. A., Long, C., & Mancini, M. A. (2021). Models of mental health recovery: An overview of systematic reviews and qualitative meta-syntheses. *Psychiatric Rehabilitation Journal*, *44*(3), 238–253. https://doi.org/10.1037/prj0000444

9. Donovan, K. A., Grassi, L., McGinty, H. L., & Jacobsen, P. B. (2013). Validation of the Distress Thermometer worldwide: state of the science. *Psycho-Oncology*, *23*(3), 241–250. https://doi.org/10.1002/pon.3430

10. Eichstaedt, J. C., Smith, R. J., Merchant, R. M., Ungar, L. H., Crutchley, P., Preoţiuc-Pietro, D., … Schwartz, H. A. (2018). Facebook language predicts depression in medical records. *Proceedings of the National Academy of Sciences*, *115*(44), 11203–11208. https://doi.org/10.1073/pnas.1802331115

11. Flannelly, K. J., Emanuel, L. L., Handzo, G. F., Galek, K., Silton, N. R., & Carlson, M. (2012). A national study of chaplaincy services and end-of-life outcomes. *BMC Palliative Care*, *11*(1). https://doi.org/10.1186/1472-684x-11-10

12. Fridman, I., Fagerlin, A., Scherr, K. A., Scherer, L. D., Huffstetler, H., & Ubel, P. A. (2020). Gain–loss framing and patients' decisions: a linguistic examination of information framing in physician–patient conversations. *Journal of Behavioral Medicine*, *44*(1), 38–52. https://doi.org/10.1007/s10865-020-00171-0

13. Graham, J. W. (2009). Missing Data Analysis: Making It Work in the Real World. *Annual Review of Psychology*, *60*(1), 549–576. https://doi.org/10.1146/annurev.psych.58.110405.085530

14. Hallgren, K. A., & McCrady, B. S. (2015). We-Language and Sustained Reductions in Drinking in Couple-Based Treatment for Alcohol Use Disorders. *Family Process*, *55*(1), 62–78. https://doi.org/10.1111/famp.12150

15. Handzo, G. F., Flannelly, K. J., Kudler, T., Fogg, S. L., Harding, S. R., Hasan, I. Y. H., … Taylor, R. B. E. (2008). What Do Chaplains Really Do? II. Interventions in the New York Chaplaincy Study. *Journal of Health Care Chaplaincy*, *14*(1), 39–56. https://doi.org/10.1080/08854720802053853

16. Idler, E. L., Grant, G. H., Quest, T., Binney, Z., & Perkins, M. M. (2015). Practical Matters and Ultimate Concerns, "Doing," and "Being": A Diary Study of the Chaplain's Role in the Care of the Seriously Ill in an Urban Acute Care Hospital. *Journal for the Scientific Study of Religion*, *54*(4), 722–738. https://doi.org/10.1111/jssr.12235

17. Idler, E., Blevins, J., Kiser, M., & Hogue, C. (2017). Religion, a social determinant of mortality? A 10-year follow-up of the Health and Retirement Study. *PLOS ONE*, *12*(12), e0189134. https://doi.org/10.1371/journal.pone.0189134

18. IsHak, W. W., Collison, K., Danovitch, I., Shek, L., Kharazi, P., Kim, T., … Nuckols, T. (2017). Screening for depression in hospitalized medical patients. *Journal of Hospital Medicine*, *12*(2), 118–125. https://doi.org/10.12788/jhm.2693

19. Jacobsen, P. B., Donovan, K. A., Trask, P. C., Fleishman, S. B., Zabora, J., Baker, F., & Holland, J. C. (2005). Screening for psychologic distress in ambulatory cancer patients. *Cancer*, *103*(7), 1494–1502. https://doi.org/10.1002/cncr.20940

20. Jacobson, N., & Greenley, D. (2001). What Is Recovery? A Conceptual Model and Explication. *Psychiatric Services*, *52*(4), 482–485. https://doi.org/10.1176/appi.ps.52.4.482

21. Kalia, M. (2005). Neurobiological basis of depression: an update. *Metabolism*, *54*(5), 24–27. https://doi.org/10.1016/j.metabol.2005.01.009

22. Kirchoff, R. W., Tata, B., McHugh, J., Kingsley, T., Burton, M. C., Manning, D., … Chaudhary, R. (2021). Spiritual Care of Inpatients Focusing on Outcomes and the Role of Chaplaincy Services: A Systematic Review. *Journal of Religion and Health*, *60*(2), 1406–1422. https://doi.org/10.1007/s10943-021-01191-z

23. Kleinberg, B., van der Vegt, I., & Mozes, M. (2020, July 1). Measuring Emotions in the COVID-19 Real World Worry Dataset (K. Verspoor, K. B. Cohen, M. Dredze, E. Ferrara, J. May, R. Munro, … B. Wallace, Eds.). Retrieved March 20, 2024, from ACLWeb website: https://aclanthology.org/2020.nlpcovid19-acl.11/

24. Lindquist, K. A., MacCormack, J. K., & Shablack, H. (2015). The role of language in emotion: predictions from psychological constructionism. *Frontiers in Psychology*, *6*(444). https://doi.org/10.3389/fpsyg.2015.00444

25. Mak, H. W., Noguchi, T., Bone, J. K., Wels, J., Gao, Q., Kondo, K., … Fancourt, D. (2023). Hobby engagement and mental wellbeing among people aged 65 years and older in 16 countries. *Nature Medicine*, *29*, 1–8. https://doi.org/10.1038/s41591-023-02506-1

26. Marin, D. B., Sharma, V., Sosunov, E., Egorova, N., Goldstein, R., & Handzo, G. F. (2015). Relationship Between Chaplain Visits and Patient Satisfaction. *Journal of Health Care Chaplaincy*, *21*(1), 14–24. https://doi.org/10.1080/08854726.2014.981417

27. Markowitz, D. M. (2021). The Meaning Extraction Method: An Approach to Evaluate Content Patterns From Large-Scale Language Data. *Frontiers in Communication*, *6*. https://doi.org/10.3389/fcomm.2021.588823

28. Mascaro, J. S., Palmer, P., Willson, M., Ash, M. J., Florian, M. P., Srivastava, M., … Raison, C. L. (2022). The Language of Compassion: Hospital Chaplains' Compassion Capacity Reduces Patient Depression via Other-Oriented, Inclusive Language. *Mindfulness*. https://doi.org/10.1007/s12671-022-01907-6

29. Metler, S. J., & Busseri, M. A. (2015). Further Evaluation of the Tripartite Structure of Subjective Well-Being: Evidence From Longitudinal and Experimental Studies. *Journal of Personality*, *85*(2), 192–206. https://doi.org/10.1111/jopy.12233

30. Orvell, A., Gelman, S. A., & Kross, E. (2022). What "you" and "we" say about me: How small shifts in language reveal and empower fundamental shifts in perspective. *Social and Personality Psychology Compass*. https://doi.org/10.1111/spc3.12665

31. Pennebaker, J. W., Boyd, R. L., Jordan, K., & Blackburn, K. (2015). *The Development and Psychometric Properties of LIWC2015*. Retrieved from https://repositories.lib.utexas.edu/bitstream/handle/2152/31333/LIWC2015_LanguageManual.pdf

32. Pennebaker, J. W., Mehl, M. R., & Niederhoffer, K. G. (2003). Psychological Aspects of Natural Language Use: Our Words, Our Selves. *Annual Review of Psychology*, *54*(1), 547–577. https://doi.org/10.1146/annurev.psych.54.101601.145041

33. Pesut, B., Sinclair, S., Fitchett, G., Greig, M., & Koss, S. E. (2016). Health Care Chaplaincy: A Scoping Review of the Evidence 2009–2014. *Journal of Health Care Chaplaincy*, *22*(2), 67–84. https://doi.org/10.1080/08854726.2015.1133185

34. Remes, O., Mendes, J. F., & Templeton, P. (2021). Biological, Psychological, and Social Determinants of Depression: A Review of Recent Literature. *Brain Sciences*, *11*(12), 1633. https://doi.org/10.3390/brainsci11121633

35. Rude, S., Gortner, E.-M., & Pennebaker, J. (2004). Language use of depressed and depression-vulnerable college students. *Cognition & Emotion*, *18*(8), 1121–1133. https://doi.org/10.1080/02699930441000030

36. Snaith, R. P. (2003). The Hospital Anxiety And Depression Scale. *Health and Quality of Life Outcomes*, *1*(1), 29. https://doi.org/10.1186/1477-7525-1-29

37. Snowden, A., Karimi, L., & Tan, H. (2021). Statistical fit is like beauty: A rasch and factor analysis of the Scottish PROM. *Journal of Health Care Chaplaincy*, 1–16. https://doi.org/10.1080/08854726.2021.1916336

38. Tackman, A. M., Sbarra, D. A., Carey, A. L., Donnellan, M. B., Horn, A. B., Holtzman, N. S., … Mehl, M. R. (2019). Depression, negative emotionality, and self-referential language: A multi-lab, multi-measure, and multi-language-task research synthesis. *Journal of Personality and Social Psychology*, *116*(5), 817–834. https://doi.org/10.1037/pspp0000187

39. Timmins, F., Caldeira, S., Murphy, M., Pujol, N., Sheaf, G., Weathers, E., … Flanagan, B. (2017). The Role of the Healthcare Chaplain: A Literature Review. *Journal of Health Care Chaplaincy*, *24*(3), 87–106. https://doi.org/10.1080/08854726.2017.1338048

40. Tse, S., & Ng, R. M. K. (2014). Applying a Mental Health Recovery Approach for People from Diverse Backgrounds: The Case of Collectivism and Individualism Paradigms. *Journal of Psychosocial Rehabilitation and Mental Health*, *1*(1), 7–13. https://doi.org/10.1007/s40737-014-0010-5

41. Umberson, D., & Karas Montez, J. (2011). Social Relationships and Health: a Flashpoint for Health Policy. *Journal of Health and Social Behavior*, *51*(1), 54–66. https://doi.org/10.1177/0022146510383501

42. Williams, N. (2004). The impact of matching the patient's vocabulary: a randomized control trial. *Family Practice*, *21*(6), 630–635. https://doi.org/10.1093/fampra/cmh610

43. Wong, Y. J., & Rochlen, A. B. (2009). Potential benefits of expressive writing for male college students with varying degrees of restrictive emotionality. *Psychology of Men & Masculinity, 10*(2)*,* 149–159. https://doi.org/10.1037/a0015041

Appendix

Clinical Variables Tests of Normality

	Kolmogorov-Smirnov		Shapiro-Wilk	
	Statistic	Sig.	Statistic	Sig.
Pre Distress	.148	<.001	.921	<.001
Post Anxiety	.103	.085	.954	.018
Post Depression	.133	.006	.936	.002
Feelings After	.162	<.001	.872	<.001
Feelings During	.457	<.001	.475	<.001

Raw Aim 1

			Correlations				
			Pre Distress	Post Anxiety	Post Depression	Post Anxiety Residual	Post Depression Residual
Spearman's Rho	Positive Emotion	Correlation Coefficient	-.164*	-.213**	-0.120	-0.134	-0.064
		Sig. (2-tailed)	0.022	0.003	0.094	0.062	0.371
		N	195	198	198	195	195
	Negative Emotion	Correlation Coefficient	0.123	.199**	.140*	0.136	0.099
		Sig. (2-tailed)	0.088	0.005	0.049	0.058	0.168
		N	195	198	198	195	195
	Anxious Emotion	Correlation Coefficient	.155*	.217**	0.138	.160*	0.089
		Sig. (2-tailed)	0.030	0.002	0.052	0.025	0.215
		N	195	198	198	195	195
	Anger Emotion	Correlation Coefficient	-0.009	0.109	0.128	0.111	0.135
		Sig. (2-tailed)	0.902	0.126	0.073	0.122	0.060
		N	195	198	198	195	195
	Sadness Emotion	Correlation Coefficient	-0.069	0.016	0.048	0.075	0.116
		Sig. (2-tailed)	0.335	0.821	0.498	0.297	0.107
		N	195	198	198	195	195

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

Raw Aim 2

Correlations			Pre Distress	Post Anxiety	Post Depression	Post Anxiety Residual	Depression Residual	Feelings During	Feelings After
Spearman's rho	Positive Emotion	Correlation Coefficient	-.164*	-.213**	-0.120	-0.134	-0.064	-0.066	0.049
	Clout	Correlation Coefficient	-0.054	-.160*	-.184**	-.144*	-.160*	-0.009	0.102
	Home	Correlation Coefficient	-0.077	-0.053	-0.060	-0.037	-0.043	-0.004	-0.016
	Health	Correlation Coefficient	0.089	0.100	0.100	0.062	0.084	0.127	0.044
	Lifestyle	Correlation Coefficient	0.033	-0.120	-0.083	-.148*	-0.091	-0.012	0.057
	Religion	Correlation Coefficient	0.016	-0.139	-0.095	-.151*	-0.096	0.053	0.030
	Differ	Correlation Coefficient	-0.030	0.063	.141*	0.097	.160*	0.112	0.002
	Achieve	Correlation Coefficient	0.031	0.094	-0.018	0.078	-0.045	-0.031	-0.010
	Power	Correlation Coefficient	0.079	-0.013	0.080	-0.045	0.064	0.101	-0.008
	Prosocial	Correlation Coefficient	0.113	0.119	0.037	0.098	-0.012	0.095	0.007
	Affiliation	Correlation Coefficient	-0.078	-.140*	-.188**	-0.126	-.169*	-.202**	0.041
	We	Correlation Coefficient	0.001	-0.091	-.195**	-0.103	-.205**	-0.099	0.107
	Mental	Correlation Coefficient	.167*	.148*	0.113	0.100	0.091	0.137	0.008
	Insight	Correlation Coefficient	0.016	0.040	0.098	0.048	0.096	0.074	-0.119
	Tentative	Correlation Coefficient	0.015	0.088	0.109	0.096	0.120	-0.020	-0.123
	Discrepancy	Correlation Coefficient	0.103	.156*	0.068	0.122	0.037	-0.055	-0.033

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