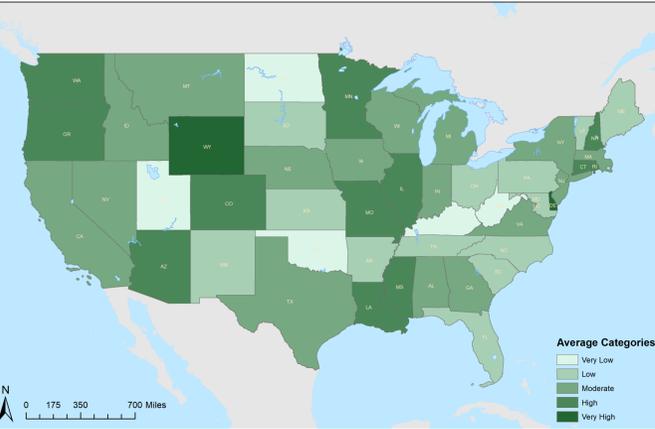


The Idea of Health Based on Where One Lives

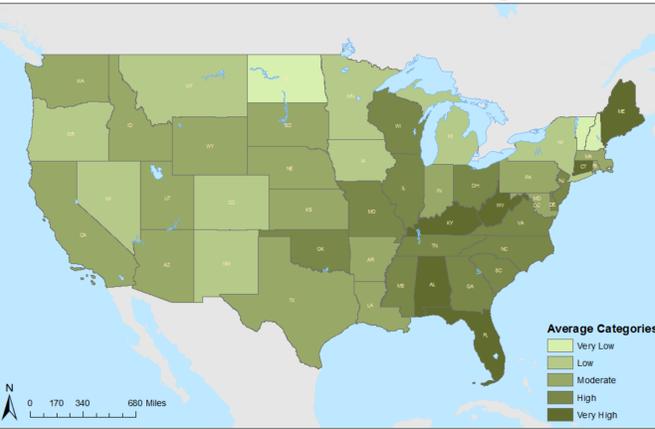
A First Look at the Regional Differences in how People Appraise Quality of Life, and the Socioeconomic Correlates.



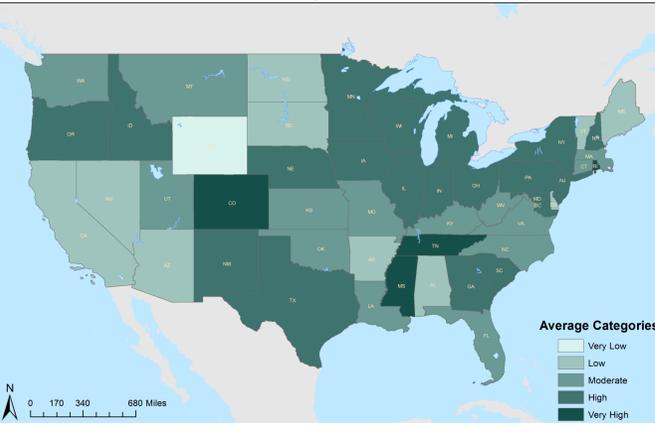
Wellness Focus State Averages



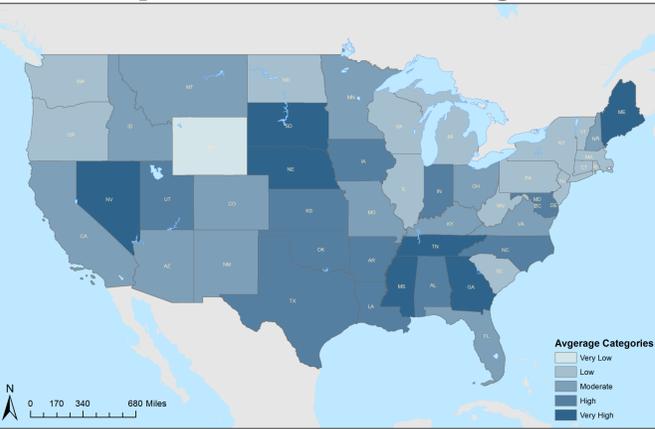
Health Worries State Averages



Recent Challenges State Averages



Spiritual Focus State Averages



Project Overview

This project is based on the proposed Tufts Collaborates grant proposal of Dr. Thomas Stopka and Dr. Carolyn Schwartz to investigate how where you live affects how you view health. The study was intended to use geospatial analysis to characterize environmental effects on individuals' ways of thinking about their health outcomes. The DeltaQuest Foundation data set includes locations (zip codes) of 3324 individuals that encompassed 350 chronic illnesses or cancer from all over the United States. This online survey includes measures of individuals' cognitive appraisal processes related to health-related quality of life (QOL), health outcomes, and resilience to health challenges. The grant proposal aimed to perform a secondary analysis to identify spatial patterns based on individual's cognitive appraisals, health challenge outcomes, and socioeconomic status^{5,6}. QOL can mean different things to different people at different times and in different places⁵. QOL appraisal indicates the need to include direct measurement of the appraisal process itself as a necessary part of QOL assessment⁵. By interpreting an individual's appraisal process, one can not only research their QOL standards, but also their idea of QOL^{5,7,8}.

This was a preliminary overview to analyze possible relationships between an individual's idea of QOL appraisal and their specific geospatial location. By further analyzing how these variables affect one's resilience to health challenges, one could provide insight for future interventions that may improve the QOL for patients with chronic illnesses QOL⁵. Looking at socioeconomic determinants such as education, employment, and income will provide further insight to possible social health interventions. This is of critical importance in the US specifically with 45% of Americans (133 million) suffering from chronic illnesses^{6,9}. By evaluating this national sample we will be able to obtain an elementary understanding of an individual's internal resources, such as their goals, idea of health, QOL perception, and potentially patterns among individuals with a immense resilience to many health challenges.

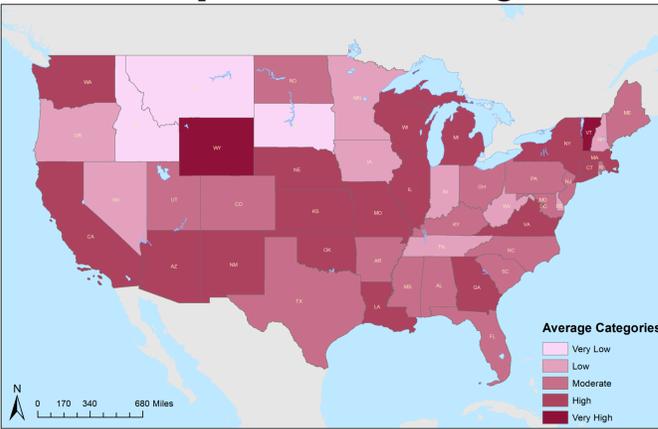
Methodology

Using zip code level data, variable averages were calculated for appraisal components within their respective state. Zip code level data was used as opposed to longitudinal and latitudinal data because there was less missing data; with 4173 individuals at the zip code level rather than 1982 individuals. The study sample was obtained through the DeltaQuest Foundation, which had previously obtained study participants from the Rare Patient Voice, LLC. Those participants were given online surveys and their results were collected and later analyzed by Rapkin and Schwartz to QOL appraisal scores for 12 profiles listed in Table 1⁶. The differences among individuals and intra-individual changes in the context of internal standards, values, and conceptualizations that relate to QOL can be understood through these appraisals created by Rapkin and Schwartz^{5,6}.

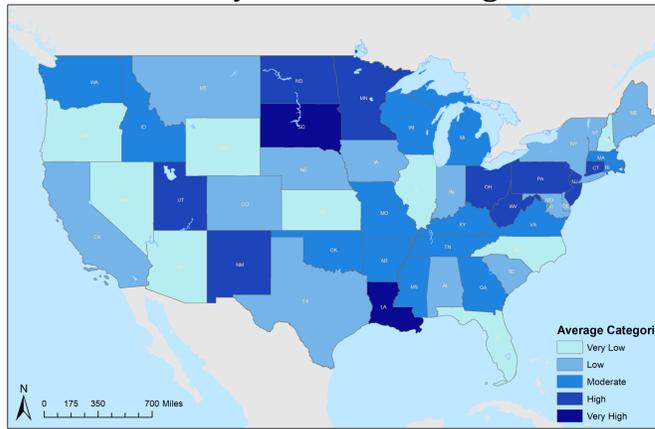
Table 1. Quality of Life Appraisal Score Descriptions and the four parameters of appraisal that must be explicitly stated to understand the basis for ratings of QOL

Appraisal Variable	Appraisal Variable Description
Wellness Focus	Calm, healthy lifestyle, self-acceptance, keep up activities and health care, focused on improvements, used to how things are, remain positive and balanced - do not think of the worst moments.
Health Worries	Health worries - concern about what doctors say, high frequency of social comparison.
Recent Challenges	Recall relevant episodes and recent challenges, accept people, let go of self-expectations, make multiple comparisons.
Spiritual Focus	Faith and generativity.
Independence	Independence - resolve problems - stay at home - no regrets, resolve recent money problems and other negative circumstances, keep active and fully participate.
Worry-Free	Compare to others without health limits versus those who have had similar illness, be worry free, solve money, living, practical problems versus accept people and roles, let go of self-expectations.
Pursue Dreams	Pursue dreams and goals, change living situation versus focus on comparisons to others my age and stay in current living situation.
Relationship Focus	Romance improved relationships, self-acceptance.
Reduce Responsibilities	Let go of responsibilities for house, others, self-expectations, spend me with family, influence by questionnaire.
Maintain Roles	Accomplishments and maintaining community and work roles (versus getting rid of family problems, self-acceptance, calm, no regrets).
Anticipating Decline	Prepare loved ones and living situations for declines - ups and downs, compare self to what MD told them.
Lightness of Being	Spontaneous - not complain - how I saw myself before illness, how others see me.

Independence State Averages



Worry Free State Averages



Results

From the descriptive maps a few states stick out with unique characteristics. For instance Kentucky has one of the lowest income and education frequencies, along with the lowest average in age and more individuals disabled due to medical conditions than employed. In terms of appraisal scores Kentucky was in the lowest average category for wellness focus and the highest category for health worries. Wyoming also had unique results being in the highest mean category for wellness focus, independence and the lowest category for recent challenges, spiritual focus, and worry free. Lastly Wyoming then was the oldest in age and highest in education.

Table 2. Quality of Life Appraisal Scores Highest and Lowest Levelled Averages by State

QOL Appraisal Score Variable:	Lowest Means	Highest Means
Wellness Focus	<ul style="list-style-type: none"> Kentucky North Dakota Oklahoma Utah West Virginia 	<ul style="list-style-type: none"> Delaware Wyoming
Health Worries	<ul style="list-style-type: none"> New Hampshire North Dakota Vermont 	<ul style="list-style-type: none"> Alabama Connecticut Florida Kentucky Maine West Virginia
Recent Challenges	<ul style="list-style-type: none"> Wyoming 	<ul style="list-style-type: none"> Colorado Mississippi Tennessee
Spiritual Focus	<ul style="list-style-type: none"> Wyoming 	<ul style="list-style-type: none"> Georgia Kansas Maine Mississippi Nebraska Nevada Tennessee
Independence	<ul style="list-style-type: none"> Idaho Montana South Dakota 	<ul style="list-style-type: none"> Vermont Wyoming
Worry-Free	<ul style="list-style-type: none"> Arizona Florida Illinois Nebraska Nevada North Carolina Oregon Vermont Wyoming 	<ul style="list-style-type: none"> Louisiana South Dakota
Pursue Dreams	<ul style="list-style-type: none"> Georgia Kansas Mississippi South Dakota 	<ul style="list-style-type: none"> Nevada Vermont

A few spatial patterns were that states that scored highest for pursuing dreams also scored lowest for worry-free. States that scored highest for health worries were all located on the eastern half of the US. States that scored highest for recent challenges also tended to be more worry-free and more spiritually focused. Some states such as Nevada scored highest for spiritual focus and worry-free. With the exception of Utah, states on the western half of the US tended to be more wellness-focused than the east.

All states that scored either on the higher end or lower end of the appraisal score variables average are found in Table 2 along with socioeconomic determinants in Table 3.

Table 3. Key Socioeconomic Determinants Findings

Socioeconomic Determinant	Lowest Frequency	Highest
Age	<ul style="list-style-type: none"> Idaho Kentucky Maryland Oklahoma Rhode Island Utah West Virginia 	<ul style="list-style-type: none"> Maine Oregon Wyoming
Education	<ul style="list-style-type: none"> Alabama Delaware Idaho Kentucky Maryland Pennsylvania Oregon South Carolina South Dakota Tennessee Utah Wyoming 	<ul style="list-style-type: none"> Arkansas Massachusetts Washington

**Income: Kentucky had the lowest income frequency.*

**Employment: Montana, North Dakota, Kentucky, West Virginia, and Maine had higher frequencies of individuals disabled due to medical condition than employed.*

Discussion

These results gave some insight to what appraisal variables to focus on in order to lower others and vice-versa. For instance, the more spiritual a state was the more likely they were to be more worry-free. The results also implied that states on the eastern half of the US struggled with more health worries, while the states on the west were more focused on wellness with less health worries.

A limitation of the study was that the population consisted of only 13% male and 77% women, making the results less generalizable for males. Another issue was samples from more rural areas were much smaller than those for more urbanized states and cities such as, Los Angeles, San Francisco, New York, and Chicago. Large samples from more rural areas would make our finding more statistically significant as well as accurate. A major strength of the study is the large population size of 4173 individuals, a size this large increases accuracy and precision.

Another strength is the importance of improving interventions for this specific population, 45% of US citizens would benefit from significant research finding.

I would recommend further analyzing the regions with similar patterns, as well as conducting another geospatial analysis with variables prior to the QOL appraisal scores.

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