Socioeconomic Status and Self-Rated Health in the United States Gulf Region

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Introduction

The Gulf of Mexico region, which includes the U.S. states of Texas, Louisiana, Mississippi, Alabama, and Florida, faces a complex mix of environmental, socioeconomic, and public health challenges. Frequent natural disasters have severely impacted infrastructure and economic stability, which disproportionately affects lower-income communities (Pleninger, 2022). These recurring disasters compound long-standing issues such as limited healthcare access, high rates of chronic disease, and economic instability, all of which contribute to significant health disparities in the Gulf of Mexico region (National Academies of Sciences, Engineering, and Medicine [NASEM], 2023).

Socioeconomic status (SES) is a well-documented determinant of health that impacts access to healthcare (Sun & Chen, 2022). Individuals with lower SES are at greater risk for chronic conditions such as obesity, diabetes, and cardiovascular disease (Hu et al., 2021). In the United States gulf region, rural communities face unique barriers, including limited healthcare services and higher rates of obesity, which can further exacerbate health disparities (Min, 2014).

Self-reported health offers insight into how individuals perceive their overall well-being. Income level is positively associated with better self-rated health, as individuals with higher incomes typically have greater access to medical care and healthier living environments. Examining the link between income and self-rated health can provide valuable insight into regional health inequities. An individual with higher perceived income level has a greater probability of higher self-reported health status (Cialani & Mortazavi, 2020). This examination of one's perceived

income level and their own self-reported health shows a positive correlation between income and perceived health. Using known SES indicators, such as income, can help researchers identify the relationship between SES and self-rated health.

This study aims to explore the relationship between SES and self-rated health for residents of the United States gulf region. Furthermore, the analysis of SES and self-rated health can help researchers understand the extent of the impact that income has on self-reported health. This study will use ordinal logistic regression to examine the correlation between SES and self-rated health. Additionally, this study will identify any disparities in self-reported health and income levels. This study will provide support that can impact potential policy changes and provide guidance for healthcare professionals working in these communities. If an individual has a lower income level, then they are more likely to have lower self-reported health.

The findings have important implications for public health policies and interventions aimed at reducing health disparities in the United States gulf region. Given the well-established connections between SES, chronic disease, and neighborhood deprivation, targeted efforts to address healthcare and economic inequalities are essential (Cho, et al., 2022). Addressing the long-standing socioeconomic and environmental challenges in the gulf region requires structural interventions to improve community resilience and health outcomes (NASEM, 2023). This research helps identify gaps in healthcare access and socioeconomic support, highlighting areas where interventions could be most effective.

Methods

This study investigates the relationship between SES and self-rated health among residents living in the United States gulf region. Data is synthesized from the Gulf Science Data Repository and

analyzed in R (R Core Team, 2022). Ordinal logistic regression is used to assess how income influences self-reported health, while accounting for other potential contributing factors. This study looks at the broader impact of economic disparities on perceived well-being and self-rated health.

The Gulf Science Data Repository is a free source of data focusing on scientific findings and public understanding of the Gulf of Mexico ecosystem (Gulf of Mexico Research Initiative Information & Data Cooperative, n.d.). This dataset is based out of the Texas A&M University-Corpus Christi Harte Research Institute. This dataset surveyed residents of Louisiana, Alabama, Florida, and Mississippi on their experiences during the 2017-2018 hurricane season. The survey was conducted from January to May of 2019 through telephone correspondence and mail-in surveys. These surveys discussed the impacts of the hurricane season on physical health, mental health, household finances, and the aftermath of the storms.

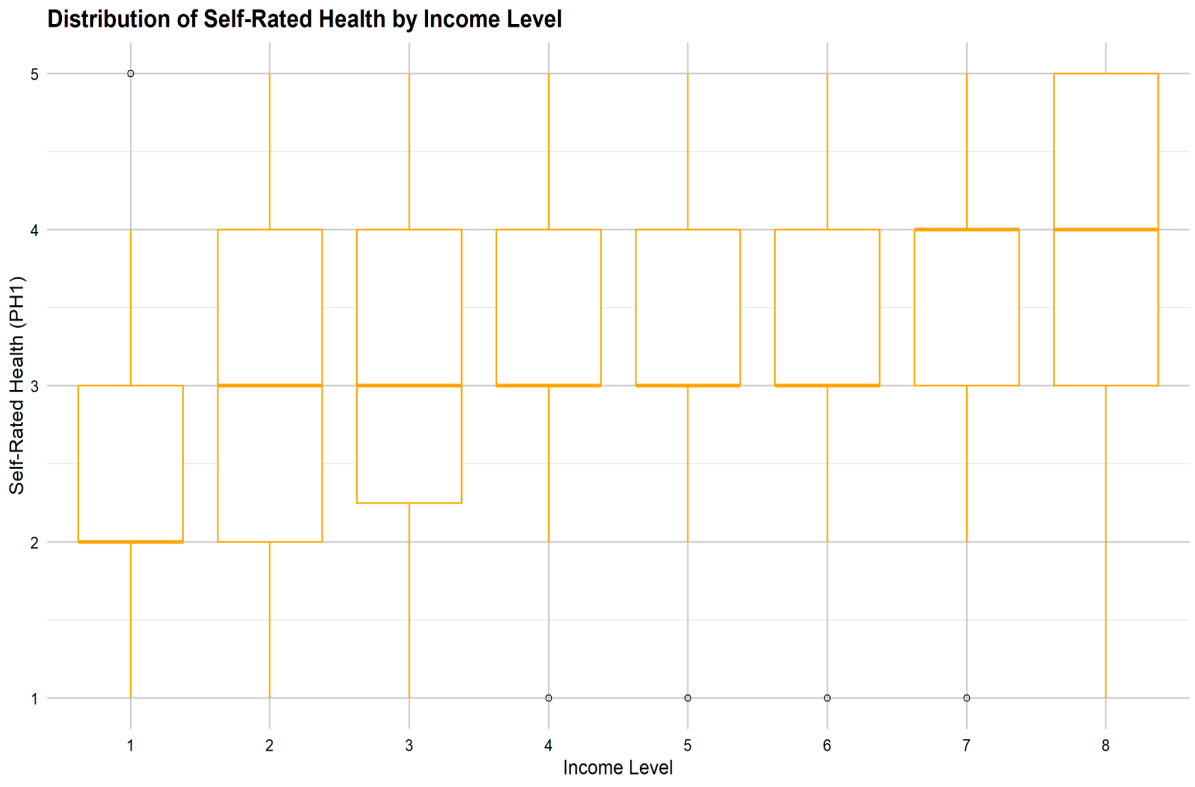
This study uses an ordinal logistic regression to compare self-rated health and socioeconomic status. In this case, the categories for self-rated health include: poor, fair, good, very good, and excellent. Ordinal logistic regression was selected for this study because of our use of these categorical variables.

Results

Results indicate that as income increases, the likelihood of reporting better health also increases. Specifically, for each unit of increase in income, there is a 0.34 increase in self-reported health. Individuals in the lowest income level had the lowest self-rated health status and individuals in the highest income level had the highest self-rated health status.

Coefficient	Value	Standard Error	t-Value
Income	0.3488	0.03386	10.3
Poor vs. Fair	-1.2714	0.2058	-6.1773
Fair vs. Good	0.3303	0.1713	1.9283
Good vs. Very Good	1.9648	0.1865	10.5375
Very Good vs. Excellent	4.0272	0.2329	17.2947

Figure 1.1



The threshold for moving from Very Good Health to Excellent Health (4.0272) is higher than moving from Poor Health to Fair Health (-1.2714). This suggests that large increases in income are needed to reach the highest health categories. There are disproportionate intervals between these categories, suggesting disparity.

Discussion

Our findings show a statistically significant positive relationship between income and self-rated health among residents of the Gulf of Mexico region. For each unit increase in income, the likelihood of reporting a better health category increases by 0.3488. These results align with existing literature that has consistently documented a positive association between socioeconomic status (SES) and health outcomes (Sun & Chen, 2022). Individuals with higher incomes are more likely to report better health. This is likely due to increased access to healthcare, healthier living environments, and reduced exposure to financial stressors.

The relationship between SES and health is well established. Income influences a person's ability to obtain nutritious food, live in a safe neighborhood, and access various healthcare services. These factors often contribute to better physical and mental health (Hu et al., 2021). Our findings reinforce the idea that economic disparities have a direct and measurable impact on individuals' perceptions of their health, especially in vulnerable regions like the Gulf Coast, where persistent environmental threats and systemic barriers exacerbate health inequities.

One notable result is the large disparity in the thresholds between self-rated health categories. The threshold for moving from Very Good to Excellent health is 4.0272, which is substantially higher than the -1.2714 threshold between Poor and Fair health. This suggests that while smaller income increases may help individuals move from lower to mid-range health categories, far

larger increases in income are necessary to reach the highest level of self-rated health. This forms an almost exponential relationship between the different thresholds. For example, reaching the Excellent health category likely requires more than just access to basic healthcare.

A strength of this study is its regional focus on the Gulf of Mexico. This specific geographic focus allows for a greater understanding of how the prevalence of natural disasters and resource availability intersect with SES and health. Additionally, the data collection occurred following a major hurricane season, offering a longitudinal perspective on health perceptions in the aftermath of natural disasters, such as hurricanes.

However, there are several limitations. This study used secondary data analysis, meaning the dataset was not originally designed to address our specific hypothesis. As a result, relevant variables may not be accurately reflected in this study. The data was collected in 2019, which would not help us to understand any impacts of COVID-19 or any recent natural disasters on residents of the Gulf of Mexico region. Furthermore, the small sample size used in the study limits the generalizability of the results.

This study provides further evidence of the strong association between income and self-rated health in the Gulf of Mexico region. The results suggest that individuals with lower incomes are significantly more likely to report poorer health, and that large income increases may be required to achieve Excellent self-rated health. These findings highlight the urgent need for public health policies that address socioeconomic disparities, particularly in disaster-prone regions like the Gulf of Mexico. Future research should build upon this work by using more recent data, expanding the sample size, and incorporating additional SES indicators such as education and

employment status. These findings can be used to create better interventions and allocate resources in ways that support the health of disadvantaged communities, like the Gulf of Mexico.

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