

Scoring Hospitals on Their Communication Skills as Evaluated by Hospital Patients

Intro - Motivation

Being informed about useful medical information is important now more than ever because of the COVID-19 pandemic. In the digital age, people have access to a plethora of readily available information resources that were not available prior to the creation of smartphones or the internet. That being said, there is a lot of misinformation contained in these resources and it relies on the user to examine and evaluate the trustworthiness of their sources. Thankfully, one of the most reliable resources for medical information are doctors and nurses. But being reliable and truthful is not the only factor in determining the credibility of a source. Effective communication is also a major factor of building trust in a source. Health professionals such as doctors and nurses need to be effective communicators so that they are able to build trust with their patients, resulting in the patient to reliably and consistently use their medical advice instead of that from less credible sources. This is why I am examining the communication skills of these healthcare professionals as evaluated by hospital patients.

Intro-HCAHPS Survey

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey is a widely known and used survey that examines the experiences of hospital patients during the duration of their stay. Many topics are touched on this survey, from the communication channels with health professionals to the cleanliness of hospital rooms. This survey has been widely used by hospitals since its development in 2006. The dataset for the survey results can be found [here](#).

The survey in its official format is found [here](#).

Methods

The goal of this project is to give states a score based on the communication skills of their health professionals. There are 6 questions pertaining to the communication skills of health professionals, 3 for doctors and 3 for nurses. The six questions are as follows:

During this hospital stay, how often did nurses treat you with courtesy and respect?

During this hospital stay, how often did nurses listen carefully to you?

During this hospital stay, how often did nurses explain things in a way you could understand?

During this hospital stay, how often did doctors treat you with courtesy and respect?

During this hospital stay, how often did doctors listen carefully to you?

During this hospital stay, how often did doctors explain things in a way you could understand?

Example question format

1. **During this hospital stay, how often did nurses treat you with courtesy and respect?**
 - 1 ☐ Never
 - 2 ☐ Sometimes
 - 3 ☐ Usually
 - 4 ☐ Always

2. **During this hospital stay, how often did nurses listen carefully to you?**
 - 1 ☐ Never
 - 2 ☐ Sometimes
 - 3 ☐ Usually
 - 4 ☐ Always

All 6 questions regarding communication have the same response options of “**Never**”, “**Sometimes**”, “**Usually**”, and “**Always**”. Each answer response is given its own unique ID in the dataset and have a corresponding percentage of hospital patients that selected that response option. This means that for each of the 6 questions, the percentages of “Never”, “Sometimes”, “Usually”, and “Always” responses should equal 100 percent.

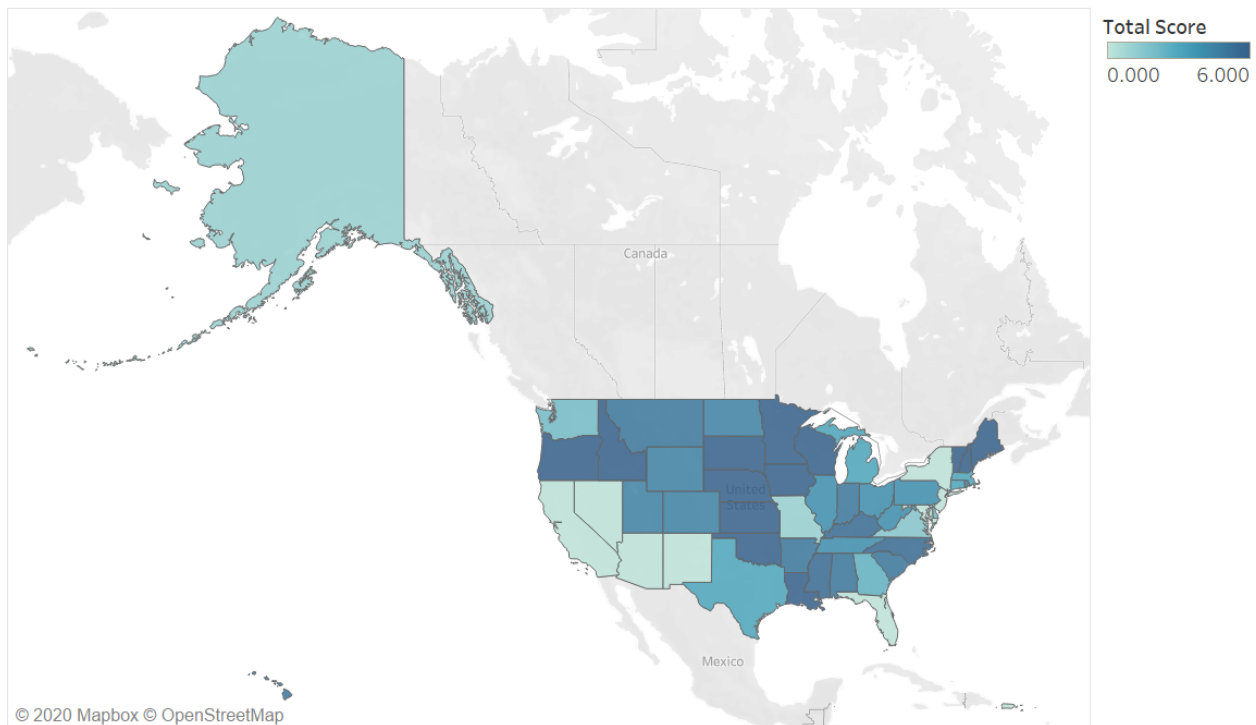
For our analysis, the answer percentage of “Always” responses is the response option that is evaluated using medians. The median percentage of answer percentages was chosen because every state has a varying amount of survey responses received. If averages were used, outlier percentages would largely influence the average for states with a lower amount of responses.

Each hospital that participated in the HCAHPS survey receives their own percentage for each of these questions. All of these percentages were grouped by the state and then the median for that state was found. A national median was then calculated. The state median was then compared to the national median. If the state median is higher than the national median, the state would receive one point for that question. If the state median is lower than the national median, they would receive a score of 0 for that question. If the medians are the same, they receive a score of 0.5. This means that a state could receive a maximum of 6 points for this evaluation. The dataset includes data regarding Washington D.C. and Puerto Rico. It was decided to keep that data and evaluate it as well.

Results and Discussion

| Distribution of Scores | | | | | | | | | | | | | |
|------------------------|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|----|
| Score | 0 | 0.5 | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 | 5.5 | 6 |
| Count | 9 | 1 | 2 | 1 | 2 | 1 | 4 | 0 | 5 | 5 | 6 | 3 | 13 |

Hospital Communication Skills Score by State as Evaluated by Hospital Patients



This map and table are result of our analysis. We can see that 4 of the 9 states that scored a 0 appear to be in the southwest region of the mainland United States. The central area of the mainland United States appears hold many of the higher scores. Overall, it appears that states on the coasts tend to score lower than states in the central United States. This brings new questions as to what could be affecting these low scores. Surprisingly, some states with many known and highly regarded medical facilities came out with low scores, such as Texas and Maryland. Highly populated states such as California and Florida had scores as low as 0.

Discussion and Limitations

Based on the results, it appears that there are many factors that could affect how these states are scored. States with a score of 0 should be further examined at a state level in order to see discrepancies between counties. Other factors such as population, median household income, and education completion rates could be important to consider as they may affect the funding and the actual communication effectiveness between hospital patients and healthcare professionals.

Nonetheless, it is still surprising that a state would score a 0 for every single category. A state that score 0 means that that state did not break the top 50 percent of states that “Always” had good communication skills for doctors or nurses.

There are many limitations to this analysis. Firstly, just because a state scores 0 out of 6 does not mean that the healthcare professionals in that state are bad communicators. For example, Washington state had a 75 percent response rate that agreed that hospital doctors in that state “Always” explain things with clarity. But because the national median is 76, Washington State received a score of 0 for that category. 75 percent of patients that feel their doctor “Always” explains things clearly is still very impressive. In order to fix this, a more robust or standardized scoring method would be needed in order to give more recognition to the states that still have impressive communication skills, but barely fall below the national median.