Big Apple, Bigger Impact: Social Determinants and Hospital Ratings in New York City

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The Factors

The social determinants of health are among indicators of health outcomes of patients, and the importance of health policy is to improve the health of individuals and populations. Education and income are the major factors in determining health. Education is often measured as high school graduation or years of education. Income is measured as annual household income. Other factors include race and gender.

Data Selection

Data tables with demographic information were downloaded from their respective sources and were edited in Microsoft Excel. A new column was created for each demographic factor, and the mean was computed. Percentages were computed for each demographic factor. The final demographic data were used to calculate the percentage of each demographic factor.

Methods

Data Preparation. Data tables with demographic information were downloaded from their respective sources and were edited in Microsoft Excel. A new column was created for each demographic factor, and the mean was computed. Percentages were computed for each demographic factor. The final demographic data were used to calculate the percentage of each demographic factor.

Results

According to the graphs derived from the data, there are some general trends about the data. The figures below show that food stamp usage is correlated with lower wages. Shows that the higher the income of the population the lower the hospital rating. Finally, figures show racial trends from low ranking to high ranking and how racial diversity drops with higher rated hospitals. These conclusions are not only supported by the visualizations but are also statistically significant. It was found that there is a strong positive correlation between percentage of high school graduates and rating (r = 0.6314, p = 0.0001). It was found that there is a strong positive correlation between percentage of college graduates and rating (r = 0.5821, p = 0.0001). It was found that there is a strong positive correlation between income and rating (r = 0.3821, p = 0.0001). It was found that there is a strong negative correlation between percentage of Black / African American population and rating (r = -0.2199, p = 0.0001). It was found that there is a strong negative correlation between percentage of "other" race population and rating (r = -0.2893, p = 0.0001). Other social properties were statistically insignificant, without hitting a 95% CI and the 0.313 Spearman’s coefficient for (r = 0.40) the size of the dataset. In all, it was shown that multiple demographic factors of the population are statistically significantly tied results of the rating system.

Conclusion

The results of the study (Figure 5) find that there are certain demographic factors of populations surrounding hospitals that can be linked to an association for the CMS rating system. These include food stamp usage (r = 0.3134), high school attainment (r = 0.3821), bachelor’s degree attainment (r = 0.3895), percent of non-Hispanic White population (r = 0.3208), percent Black and African American population (r = 0.4139), and percent “other” population (r = 0.3895). These findings support the fact that traditionally known demographic factors are linked to health outcomes through the hospitals patients go to. These findings add to the large body of literature that assert these associations and strengthen the argument that social factors must be acknowledged with attempts to understand health outcomes. Unfortunatly true, this also affirms the fact that many factors that determine one’s health outcome are derived from things people can do little to nothing about. In all, there is an association with demographic factors and health ratings of hospitals.

These data should be used by health officials to understand the population makeup of hospitals in New York City. Decision around budgeting and performance of hospitals should be conducted with demographic factors in mind, because optimal health of the population is the ultimate goal. Further work should include hospitals from different areas around the United States and a better understanding of a hospital's service region through patient records. With these possible continuations and more, it is my hope that officials in health departments around the country take social determinants of health more heavily into consideration as these factors' association with health outcomes increases.

Sources


Race: Asian
Race: African American
Race: Other

Food Stamp / SNAP

High School Diploma Attainment

Bachelor’s Degree Attainment

Median Household Annual Income, USD

Social Determinants of Health

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