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**Relationship Between Stress Rankings and the Overall Hospital Star Ratings: An Analysis of 150 Cities in the United States**

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Relationship Between Stress Rankings and the Overall Hospital Star Ratings: An Analysis of 150 Cities in the United States

The Centers for Medicare & Medicaid Services (CMS) recently released an Overall Hospital Quality Star Rating on its Hospital Compare website.¹ Large, teaching, and disproportionate-share hospitals were more likely to have lower star ratings, consistent with prior work examining hospital rates of readmission, surgical mortality, and hospital-acquired infection.²-⁴ These studies have focused on characteristics of hospitals, patients, and recently, communities in which hospitals are located⁵ as predictors of hospital quality. The goal of this study was to use a recently released “stress” ranking of 150 US cities as a community characteristic and explore associations with the hospital star ratings.

Methods | The “most-stressed cities” ranking⁶ is based on a set of publicly available data using factors including poverty, unemployment, divorce rate, and adults’ health conditions. It is available in the form of an overall stress ranking and 5 specific components of “stress”: work, money, family, health and safety, and “stress-coping.” The higher the ranking number, the lower the level of stress. These categories used 27 relevant metrics, and each metric was graded on a scale from 0 to 100, with 100 representing the least stressful conditions. Each metric was assigned a weight, and an overall stress score for each city was calculated using the weighted average across all metrics.

We linked each hospital’s star rating (possible range, 1 through 5) to the stress ranking of the city where it is located. Pearson product-moment correlations were used to assess the strength and significance of the association between star ratings and stress. For cities with more than 1 hospital, the star ratings for each hospital in that city were weighted by hospital bed size and then averaged to create a single star rating for that city. All statistical tests were 2-sided, and \( P < .05 \) was considered significant. All statistical analyses were performed using Stata/SE version 13 (StataCorp).

Results | There were 657 hospitals in our analysis, with a mean (SD) star rating of 2.88 (1.05). A significant correlation (\( P < .001 \)) was found between the star rating and the overall stress ranking (\( r = 0.44; 95\% \text{ CI}, 0.30-0.56 \)), such that a higher stress ranking (less-stressed city) was associated with a higher hospital star rating. Examples of cities at the extreme ends include Detroit, Michigan, and Newark, New Jersey (high stress and relatively low star ratings), and Madison, Wisconsin, and Sioux Falls, South Dakota (low stress and relatively high star ratings) (Figure). Similarly, significant associations were also found between the star ratings and 4 of the 5 specific stress domains: work (\( r = 0.27; 95\% \text{ CI}, 0.11-0.41 \)), money (\( r = 0.33; 95\% \text{ CI}, 0.18-0.47 \)), family (\( r = 0.40; 95\% \text{ CI}, 0.25-0.53 \)), and health and safety (\( r = 0.24; 95\% \text{ CI} 0.07-0.38 \)).

Discussion | “Stressed” cities have, on average, hospitals with lower star ratings than less-stressed cities. The correlation of 0.44 between bed size–weighted star rating and overall stress means that around 20% of the variance in the star ratings can be explained by community characteristics such as poverty or unemployment rate. This relationship has important implications for both patient care and outcomes, as well as for hospital quality measurement and pay-for-performance programs. On the one hand, hospitals in stressed cities might provide care of lower quality on average, perhaps because of...
inability to invest in needed clinical or technological infrastructure or staff shortages. On the other hand, the star rating component measures may be affected by community factors such as poor public transportation or limited social support services through causal pathways other than hospital quality. More exploration of why hospitals in stressed cities are found to have lower star ratings is essential.

We were only able to analyze the 150 cities in the stress ranking list and could not separate parts of large cities such as New York City, and thus we view our findings as a lower-bound estimate of the strength of the association. Future analyses could link star ratings to characteristics of communities within cities when hospitals have distinctly defined service areas.

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LESS IS MORE

Avoiding Hospitalizations From Nursing Homes For Potentially Burdensome Care:
Results of a Qualitative Study

Nursing home residents are often hospitalized for care that has the potential to be burdensome, in the sense that the risks outweigh the expected benefits.1 These hospitalizations offer little hope of improving quality of life or changing the course of illness and usually involve residents close to death who are vulnerable to iatrogenic harms. Certain facilities are more successful than others at preventing potentially burdensome hospitalizations. The reasons for their success, however, are poorly understood. We sought to explore the causes of these transfers and identify practices that help facilities avoid them.

Methods | We conducted a qualitative study involving Connecticut nursing homes with hospitalization rates in the top or bottom 10% from 2008 to 2010. We identified facilities using publicly available data (http://www.ltcfocus.org) and conducted in-depth, semistructured interviews with key staff members, using a standard interview guide, until theoretical saturation was reached; this occurred after the eighth facility visit and 31 interviews. Transcripts were analyzed according to the principles of grounded theory, using the constant comparative method.2

<table>
<thead>
<tr>
<th>Table 1. Shared Barriers to Reducing Potentially Burdensome Hospitalizations</th>
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<td><strong>Theme</strong></td>
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<tr>
<td>Families’ beliefs about the hospital and nursing home</td>
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<td>Guilt pushes families to “do everything,” which includes hospitalization</td>
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<td>The nursing home’s dual custodial and medical identity leads to the belief that it provides inferior care</td>
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<tr>
<td>Nursing home structure and organization</td>
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<td>Clinicians are unavailable on nights and weekends</td>
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<td>Staff face difficult decisions in relative isolation</td>
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