

Untangling the Associations between Physical Health, Health Care System Distrust, and Self-rated Health for the Elderly: A Geographically Weighted Regression Approach

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Abstract

Recent studies have found an adverse effect of health care system distrust on self-rated health. However, we are aware of no studies that have explored health care system distrust in a spatial framework and as a consequence little is known about whether this effect varies across space. This paper offers a unique application of logistic geographically weighted regression (GWR) to the study of health care service distrust among residents of Philadelphia, USA. The methodology is unique in that we use a spatial randomization approach to convert an individual-level database with zone-based geocodes to point databases that permit the use of GWR. Indeed, we believe this randomization approach has potential for promoting spatial analysis using survey data with zone-based geocodes. Substantively, our analysis suggests that controlling for physical health conditions (an important substantive contribution of our work) eliminates the effect of health care system distrust on self-rated health in a global logistic model but the GWR models provide evidence that the adverse effect of distrust vary, especially for respondents of southwestern Philadelphia. That is, there is non-stationarity with respect to the impact of health care system distrust on self-rated health. We use GWR as an exploratory and explanatory tool, including generating surface maps for outcomes and model predictors.

Keywords: *self-rated health, health care system distrust, geographically weighted regression, spatial randomization, and modifiable areal unit problems*