A latent variable approach to health measurement in the Health and Retirement Study and Mexican Health and Aging Study.

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Acknowledgements: We thank the University of Texas Population Research Center (Grant R24 HD42849) for administrative and computing support; the NICHD Ruth L. Kirschstein National Research Service Award (T32 HD007081-35) for training support; the University of Michigan and Rand Corporation for making the data available to the public, and the members of the Population Health Lab for their helpful suggestions. The contents of this manuscript are solely the responsibility of the authors and do not represent the official views of NICHD, Rand Corporation, or the University of Texas at Austin.

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Abstract

Understanding health and how health changes over time as a function of aging is a key objective of the Health and Retirement Study (henceforth HRS) and its Mexican counterpart, the Mexican Health and Aging Study (henceforth MHAS). Crucial to this effort is a critical investigation of what we mean by “health” and how health is measured. Previous research has tended to either (1) look at specific, narrow domains of health (i.e. activities of daily living) or (2) ask respondents to self-report their health. The first approach has proven to be a productive approach for the study of issues such as disability. For example, the Activities of Daily Living measure if a respondent has the ability to conduct basic daily tasks of functioning or if they are limited by a medical condition or their environment (Verbrugge and Jette 1994). However, such measures, covering relatively narrow domains, presumably do not provide information about relative differences between individuals who are not disabled and who yet may still have different amounts of “health”. The second approach, asking respondents to self-report their health, yields a measure which has been used in a vast amount of research literature. The measure takes a broader view of “health” than, say, the ADLs, but this comes at the expense of introducing subjectivity into the measurement process. Individuals may respond differently to this question partially as a function of their SES (e.g., they are comparing their health to their peers) which is undesirable.

While both approaches have yielded much fruit, our aim is to ask whether a broader, yet still objective, consideration of what constitutes “health” can yield new insight. Using Item Response Theory (IRT), we combine questions related to functioning, chronic conditions, and mental status to form a set of health-related items that we use in an attempt to measure the notion of global health. By global health, we mean a more holistic view of health that describes a person’s wellbeing, as opposed to specifically looking at disability, disease, or depression. As part of the application of IRT models, we explore the structure of the item response data so as to then make a determination regarding which IRT model is the most appropriate. Using the scores that results from our application of IRT, we compare health across the national contexts of the United States and Mexico. Finally, we use the mortality data of both HRS & MHAS to test whether our IRT-based approach is a more accurate predictor of mortality than more traditional and simpler measure of global health self-rated health.

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