A Comparative Analysis of Self-Rated General Health in Three Developing Countries

Self-rated general health status has been one of the most widely used health indicators in social studies of health. This measure is easy to get, costs little, and is available in many large population surveys. The question remains concerning how well this simple self-reported indictor reflects the true health conditions of individuals, and whether it can be used for cross-population comparisons. On the one hand, self-rated general health involves comparison with peers and personal idealized state of health, both of which probably vary by social and cultural context; on the other hand, self-perception of health does contain valuable information on individual true health status, and numerous studies show that self-rated general health is a powerful predictor of subsequent mortality, even after controlling for individual characteristics, socioeconomic status, health behaviors, and objective measures of health.

It has been well recognized that the concept of health is multidimensional and perceived health is not the same as objective health. Health measures based on self-reports may be able to capture known medical conditions, perceived pains, but not body changes that cannot be perceived and have not been diagnosed; in contrast, objective health indicators may be able to capture body changes that can be measured but not perceived discomfort without medical symptoms. As a result, it is likely that self-rated general health is more closely associated with known medical conditions and other indicators of health perception than objective health measures. Moreover, self-rated health is not only a function of true health status, but also correlates with one's expectation on and standard for good health. For instance, older people may have a lower standard for good health than younger respondents, and it has been well documented that in many societies, males systematically report better health than females. It is

important to take into account these heterogeneous reporting styles for comparative studies of health based on self-reports, both among social subgroups within a population and across different populations.

The validity and comparability of self-rated general health have been relatively better known among developed societies, but little is known, for developing countries, how self-rated general health correlates with other health indicators and whether different social groups report their health status differently. In this study, we will rely on health surveys from three developing countries with dramatic cultural and socioeconomic variations: China, Indonesia, and Mexico, to examine the validity and comparability of self-rated general health among developing countries.

The main difficulty for studies of this kind is that there is no gold standard for measuring true health status. Nonetheless, all three surveys collected extensive health indicators in addition to self-rated general health, including self-reported chronic medical conditions, acute illness, mental health, and objective measures of health such as height, weight, blood pressure, lung capacity, and level of hemoglobin. These measures can be used for constructing a benchmark health indicator as the approximation of "true" health status. When "true" health status is defined, we address three questions: 1) What does self-rated general health measure, i.e., how is self-rated general health associated with other health indicators for each country? 2) Whether is there any systematic variation of self-rated general health by individual characteristics after "true" health status is controlled? In other words, is there any reporting heterogeneity for self-rated general health among social groups? 3) Does the correlational structure between self-rated general health and "true" health status as well as the reporting pattern of self-rated general health vary across different populations?

The China data are from a recently completed national probability survey of 3,000 respondents in 150 selected townships in China. Professional interviewers did face-to-face interviews to collect social and demographic information, with an emphasis on migratory history and psychosocial wellbeing. Trained community doctors then completed a detailed health survey on chronic and acute medical history, health behaviors, and access to health care, and they also collected anthropometric and biometric measures such as height, weight, blood pressure, and lung capacity at the end of the survey.

Both the Indonesia Family Life Survey (IFLS) and the Mexican Family Life Survey (MxFLS) are ongoing longitudinal surveys in developing countries. Compared to other social surveys of this kind, the IFLS and the MxFLS collected extensive information on various domains of health status, including self-rated general health, serious illness history, activities of daily living (ADLs), chronic and acute medical conditions, psychological wellbeing, and various anthropometrics and biomarkers. Because the MxFLS is modeled on the IFLS, the comparability of the two ongoing surveys is exceptional. Currently three waves of the IFLS data are available. In 1993, 7,224 households were initially interviewed and detailed information for over 22,000 individuals was collected. IFLS2 was conducted in 1997 and IFLS3 was fielded in 2000. The IFLS includes samples from 13 of 27 provinces in Indonesia, with coverage of 83 percent of its population. In IFLS3, all original IFLS1 households were re-contacted, and 10,435 households were actually interviewed, resulting in a sample of 37,173 household members. Two waves of the MxFLS data were completed. The first wave was conducted in 2002. All household members aged 12 or above over 8,400 households in Mexico were interviewed. The second wave was fielded in 2005. The MxFLS is a national representative sample of the Mexican population. In

this study, we use data from the third wave of the IFLS and the first wave of the MxFLS, considering the temporal comparability between these two surveys.

We estimate a heterogeneous ordered probit (HOPIT) model for examining reporting heterogeneity of self-rated general health.

The ordered probit model assumes that there is an underlying latent variable for true health status (H^*). Self-rated general health (H^s) captures the true health status (H^*) with the following form:

$$H^s = i \Leftrightarrow c_{i-1} < H^* \leq c_{i,} \quad i = 1,...,k \tag{1}$$

where k is the number of response categories for self-rated general health, and c_i is the corresponding cut point, with $c_0 = -\infty$ and $c_k = +\infty$. In the framework of HOPIT model, c_i is allowed to vary as a function of individual covariates (X) such as age, gender, and socioeconomic standing to capture heterogeneous reporting styles by social groups:

$$c_i = g_i(X\beta_i), \quad i = 1,...,k-1 \tag{2}$$

Moreover, we define true health status as a function of a vector of more specific health indicators (H^0) available in the data, as listed in Table 1:

$$H^* = f(H^0, \varepsilon; \alpha) \tag{3}$$

Taken together, the HOPIT model can be expressed as follows:

$$H^s = i \Leftrightarrow g_{i-1}(X; \beta_{i-1}) < f(H^0, \varepsilon; \alpha) \leq g_i(X; \beta_i) \tag{4}$$

We estimate Model (4) separately for China, Indonesia, and Mexico, and compare whether the correlational structure between self-rated general health and other health indicators is consistent across populations and examine how reporting heterogeneity affects cross-population comparability of self-rated general health.

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Table 1 Health Measures Available for Constructing Benchmark Health by Country

Variables	China	Indonesia	Mexico
Self-Reports			
Serious Illness	None	Had serious illness in last 12 months	Had serious illness in life time
Chronic Medical Conditions	Number of positive answers for the following 11 chronic morbidities: hypertension, diabetes, hypercholesterolemia, heart disease, stroke, lung disease, kidney disease, gastrointestinal disease, cancer, hepatitis, and tuberculosis	Number of negative answers for 10 questions of activities of daily living (ADLs)	Number of positive answers for the following 7 chronic diseases: diabetes, hypertension, heart disease, cancer, arthritis/rheumatism, gastric ulcer, and migraine
Acute Illness	Whether respondent had one of the following diseases in last 30 days: cold, flu, pneumonia, ear infection, stomach or intestinal illness with vomiting or diarrhea.	Number of positive answers for the following 12 diseases in last 4 weeks: headache, runny nose, cough, difficulty breathing, fever, stomach ache, nausea/vomiting, diarrhea, painful or swollen joints, skin infection, eye infection, and toothache	Number of positive answers for the following 12 diseases in last 4 weeks: flu, cough, difficulty breathing, stomach pain, nausea/vomiting, diarrhea, painful or swollen joints, skin infection, eye infection, toothache, headache, and fever
Perceived Pains	Number of positive answers for the following selected 10 items in last 3 months: headache, dizziness, eye pressure, sore throat, joint or muscle stiffness, neck/shoulder/back pain, leg heaviness, chest pressure, irregular heart beat, and stomach discomfort	None	None
Depression Symptoms	Depression is based on CES-D 20 items scale and a score of 16 or larger is defined as positive for depression	Number of positive answers for 8 questions of negative psychological feelings in past 4 weeks	Number of positive answers for 21 questions of negative psychological feelings in past 4 weeks

Table 4.1 (Continued)

Variables	China	Indonesia	Mexico
Insomnia Symptoms	Number of positive answers for the following five questions: "How often do you have trouble falling asleep" (most of the time); "How often do you have trouble with waking up during the night" (most of the time); "How often do you have trouble with waking up too early and not being able to fall asleep again" (most of the time); "How often do you get so sleepy during the day or evening that you have to take a nap" (most of the time); and "How often do you feel really rested when you wake up in the morning" (seldom/never)	None	None
Objective Measures			
Blood Pressure	High blood pressure is defined as positive if systolic blood pressure is 160 or higher or diastolic blood pressure is 100 or higher	Same	Same
Body Mass Index (BMI)	BMI is calculated as the ratio of weight in kilograms to height in meter squared. The cut-points is based on what is recommended by the National Heart, Lung, and Blood Institute (NHLBI) for distinguishing underweight, healthy, overweight, and obesity	Same	Same
Hemoglobin	None	Hemoglobin level is defined as low if its value was 12g/dl or lower	Same
Lung Capacity	Lung capacity is defined as low if the average of three measures of peak flow is less than 250ml	Same	None