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Self-assessed health: What does it mean and what does it hide?

Nicole Au, David W. Johnston*

Centre for Health Economics, Monash Business School, Monash University, Clayton, Victoria 3800, Australia

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ABSTRACT

Self-assessed general health (SAH) is one of the most frequently employed health measures in social science research. Its generic nature means it captures elements of health that more guided measures cannot, and its brevity makes it possible for health information to be included in crowded multifaceted surveys. However, a shortcoming of SAH is that it provides little guidance to researchers as to what individuals are thinking of when they assess their health – when a survey respondent reports that their health is "poor", is it because they are in pain, tired, depressed, unable to climb stairs, or something else entirely? This limits the possible inference from empirical research. It also means that important determinants and consequences of health can be missed if they are only weakly reflected in SAH. Given the continued use of SAH, it is important to better understand its structure. In this paper we use household panel data from Australia to answer two related questions: (i) what components of health does SAH most strongly represent? and (ii) does the use of SAH conceal important health effects? To answer the first question, we use a detailed health instrument and take a rigorous econometric approach to identify the health dimensions most strongly reflected in SAH. To answer the second question, we estimate the causal effects of income on SAH and on disaggregated health measures using instrumental-variables models. We find that some health dimensions – especially vitality – are consistently important to an individual when they assess their health, while other dimensions are inconsequential. We demonstrate that this fact provides insight in to why some studies find weak income gradients in SAH. Instrumental-variable regression results show that shocks to household income have no effect on SAH, but strongly improve several dimensions of health that are less commonly measured.

1. Introduction

Self-assessed general health (SAH), based on a simple question such as "In general, how would you rate your health?", is one of the most frequently employed health measures in social science research. It has been used to examine the relationship between health and a wide range of social and economic factors, including income (Meer et al., 2003), education (Johnson, 2010), socioeconomic status (Contoyannis et al., 2004), retirement (McGarry, 2004) and early life experiences (Almond and Mazumder, 2005). The main advantage of using SAH is that it is probably the most feasible and inclusive measure of health status, as its comprehensive nature allows it to capture elements of health that more guided questions cannot (Jylhä, 2009). But, at the same time, it provides little guidance to researchers as to what individuals are thinking of when they assess their general health status. When an individual reports that their health is "poor", is it because they are in pain, depressed, have limited mobility, or something else entirely? Similarly, what does a report of "excellent" mean? Does it signify the absence of illness or the presence of vigour? No doubt, reports are driven by a number of underlying factors; however, given the popularity of SAH and its unique ability to predict a number of health outcomes (Idler and Benyamini, 1997; Idler et al., 2000), it's important we thoroughly understand its structure.

Owing to limited space for health questions, SAH is often the only consistently collected measure of health in general population surveys, particularly across waves of longitudinal surveys. Therefore, it is often the sole measure used in many analyses of the determinants and consequences of health. For this reason, important health effects may be overlooked. For example, a number of studies show that income has a small or statistically insignificant causal effect on SAH (Frijters et al., 2005; Jones and Schurer, 2011; Jones and Wildman, 2008). It is possible that such findings accurately demonstrate that income has little or no causal effect on health. However, it is also possible for a near-zero effect on SAH to co-exist with significant positive income effects on certain dimensions of health (e.g. mental health), especially if

* Corresponding author.
E-mail addresses: nicole.au@monash.edu (N. Au), david.johnston@monash.edu (D.W. Johnston).

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these dimensions are only weakly reflected in SAH. A greater understanding of the health dimensions that are strongly and weakly reflected in SAH will aid in the interpretation of statistical analyses that are based on SAH.

The objective of this paper is to answer two key questions. First, what components of health does SAH most strongly reflect? And second, does the use of SAH conceal important health effects? We recognise that a large literature has sought to better understand the meaning of SAH (for a review, see Jylhä, 2009). However, to the best of our knowledge, there exists little research that directly answers the above two questions. Several related studies have investigated health factors that are associated with SAH using qualitative techniques (e.g. Kaplan and Baron-Epel, 2003; Krause and Jay, 1994; Manderbacka, 1998; Simon et al., 2005) and quantitative methods (e.g. Andersen and Lobel, 1995; Benyamini et al., 2000; Kempen et al., 1998; Singh-Manoux et al., 2006). For example, it has been shown that bodily pain, presence of illnesses and physical functioning are strongly associated with SAH (Kempen et al., 1998; Simon et al., 2005). Some studies suggest that psychosocial factors (including positive mood and vitality) are more strongly associated than physical dimensions (Andersen and Lobel, 1995; Benyamini et al., 2000). Others have highlighted the importance of healthy behaviours (Krause and Jay, 1994; Manderbacka, 1998), health expectations (Jylhä, 2009) and perceived vulnerability to illness (Andersen and Lobel, 1995).

The existing literature provides important information on the breadth of health factors that are likely to be associated with SAH. However, it is difficult to draw strong conclusions as to which health factors are most strongly reflected in SAH. Although qualitative studies allow an unrestricted range of health factors to be explored, they rely on respondents being consciously aware of what factors were most important to them when assessing their own health, and are restricted to small sample sizes. Quantitative studies have the advantage of much larger sample sizes and the ability to use multiple regression to investigate the relative importance of health factors in assessing one's health. However, this approach requires that all relevant health dimensions are included in the set of regressors and that the different health factors are all measured on a comparable scale. A further consideration is the need to control for differences in reporting behaviour. A growing literature shows that respondents tend to evaluate their health differently according to a number of non-health characteristics, including age, gender, education, culture and personality (Groot, 2000; Jylhä, 2009; Layes et al., 2012), and failure to account for these factors may bias the estimated associations between health dimensions and SAH.

Given the above considerations, there remains the need for further, more rigorous statistical analyses to identify the health factors most strongly reflected in SAH. We contribute to this literature by exploiting rich health information contained in a large nationally representative panel dataset from Australia. We use a validated health instrument (the SF-36) to explore the health dimensions reflected in SAH, and draw on findings from related studies to investigate the robustness of our included set of health dimensions. The health dimensions are all measured on a comparable scale to minimise bias towards any single health dimension and we additionally test the robustness of our results using alternative comparable scales. We take care to account for potential differences in reporting behaviour by including socio-demographic control variables and by employing fixed-effects models to remove unobserved time-invariant characteristics (such as personality and culture) that may bias the estimates.

To demonstrate that using SAH can conceal important causes of individual health, we undertake an empirical case study. Specifically, we estimate the causal effects of income on numerous survey measures of health. We compare the estimates obtained when health is measured using SAH, to estimates obtained when using disaggregated measures of health. Our findings in the first part of the paper help to explain why income can have no causal effect on SAH, while simultaneously have strong positive effects on important dimensions of health.

2. Data, definitions and descriptive statistics

2.1. The Household, Income and Labour Dynamics in Australia (HILDA) survey

We use data from the HILDA survey, a continuing nationally representative longitudinal survey of Australian households that began in 2001 with a sample of 7682 interviewed households and 13,969 interviewed persons (aged 15 years and older). In this paper we use 11 waves of HILDA spanning 2001 to 2011. The household response rates from these waves range from 87.0 per cent in wave 2 to 70.8 per cent in wave 11, while the household response rates for those households responding in the previous wave ranges from 87.0 per cent in wave 2 to 96.4 per cent in wave 11 (Summerfield et al., 2012).

The main motivation for using HILDA is that it is one of the only nationally representative panel surveys that includes quality annual information on socioeconomic characteristics as well as a detailed generic health survey. Demographic and socioeconomic data are collected through face-to-face interviews, while information on health and lifestyle behaviours is collected through a self-completion questionnaire. After omitting respondents with missing information on the outcome variables or covariates, and respondents who only appear in one wave (due to the exclusive use of fixed-effects models), the main estimation sample includes 104,143 observations on 16,799 respondents aged 18–80.

2.2. Self-assessed health

The first part of the self-complete questionnaire in HILDA is the SF-36, a generic health survey comprising 36 questions. The main outcome variable in this study is based on the first question of the SF-36, which states “In general, would you say your health is: excellent, very good, good, fair or poor”. The responses are coded as: 1 = Poor (3% of all observations), 2 = Fair (13%), 3 = Good (36%), 4 = Very Good (37%), and 5 = Excellent (11%). Looking at year-to-year changes in SAH, 60% report no change, 17% and 1% report a one and two unit improvement respectively, and 19% and 2% report a one and two unit worsening respectively. Movements of greater than two units are rare (0.3%). The most common changes in SAH occur between good and very good health.

2.3. SF-36 health dimensions

The SF-36 is widely used to measure overall health-related wellbeing in general and specific populations (Ware, 2000). It has been psychometrically evaluated and extensively tested for its reliability and validity in many countries (Ware, 2000). The SF-36 yields summary measures for eight health dimensions: 1) general health; 2) vitality; 3) physical functioning; 4) bodily pain; 5) mental health; 6) social functioning; 7) role limitations due to physical health; and, 8) role limitations due to emotional problems. These eight health dimensions were selected from 40 included in the Medical Outcomes Study and represent the most frequently measured concepts in widely-used health surveys (for more information see Tarlov et al., 1989). Although the SF-36 does not include all possible health dimensions, it correlates highly with most other common general health concepts (Ware, 2000).