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Subjective socioeconomic status and health: Relationships reconsidered

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ABSTRACT

Subjective status, an individual's perception of her socioeconomic standing, is a robust predictor of physical health in many societies. To date, competing interpretations of this correlation remain unresolved. Using longitudinal data on 8430 older adults from the 2000 and 2007 waves of the Indonesia Family Life Survey, we test these oft-cited links. As in other settings, perceived status is a robust predictor of self-rated health, and also of physical functioning and nurse-assessed general health. These relationships persist in the presence of controls for unobserved traits, such as difficult-to-measure aspects of family background and persistent aspects of personality. However, we find evidence that these links likely represent bi-directional effects. Declines in health that accompany aging are robust predictors of declines in perceived socioeconomic status, net of observed changes to the economic profile of respondents. The results thus underscore the social value afforded good health status.

Introduction

Socioeconomic disparities in morbidity remain one of the most universal patterns of inequality (Link & Phelan, 1996; Marmot, 2004). The material links arising from education, income, and wealth that underlie these disparities are well-established (Kawachi, Adler, & Dow, 2010; Smith, 2004; Strauss & Thomas, 2008). Increasingly, scholarship emphasizes the socio-psychological origins of health inequality, demonstrating that the value of socioeconomic resources lies, in part, in how these resources are perceived (Schnittker & McLeod, 2005; Singh-Manoux, Marmot, & Adler, 2005). Through the process of comparison inherent to social interaction, individuals internalize perceptions of their place in socioeconomic hierarchies. These perceptions, in turn, may influence health through various mechanisms, including stress-related neuroendocrine pathways (McEwen & Gianaros, 2010). That is, the stress of internalized inferiority has meaningful, negative physiological effects and these effects exist above and beyond the consequences of material deprivation (Marmot, 2004).

The logic has been widely embraced by a rapidly growing literature in health sciences that documents a robust correlation between individual perceptions of socioeconomic status – that is, "subjective" status – and health. Numerous studies link measures of subjective socioeconomic status to a myriad of health indicators in populations around the globe (e.g., Adler, Epel, Castellazzo, & Ickovics, 2000; Demakakos, Nazroo, Breeze, & Marmot, 2008; Friestad & Klepp, 2006; Goodman et al., 2001; Hamad, Fernald, Karlan, & Zinman, 2008; Lemeshow et al., 2008). Most often, the correlation between subjective socioeconomic status and health persists after adjustment for "objective" socioeconomic indicators – such as education, income, and wealth – giving weight to a causal interpretation of this association. The interpretation is consistent with the work linking population-level income inequality and population health – a relationship receiving considerable press in recent years (Adelman, 2007; Wilkinson & Pickett, 2009).

Active debate continues about material versus socio-psychological interpretations of the adjusted correlation between subjective socioeconomic status and health, with some arguing that other pathways may also explain the link. Alternative explanations reference difficult-to-measure characteristics of families and individuals, such as educational quality and asset networks that may be captured more fully in subjective assessments. Other alternatives include reverse causation, running from health to perceived status, and personality-based response bias that may drive both perceptions of status and health outcomes (Bago d'Uva, Van Doorslaer, Lindeboom, & O'Donnell, 2008; Garbarski, 2010; Singh-Manoux et al., 2005). Schnittker and McLeod summarized this perspective, writing: "researchers cannot fully understand the mechanisms behind these effects without adequately understanding from where individuals derive their senses of status" (2005: p. 84).

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The present study takes up this issue. In doing so, we seek to refine the interpretation of the now widely-cited subjective socioeconomic status–health relationship. We develop tests that explicitly consider the role of perceptions and other unmeasured individual-specific characteristics in the production of subjective status assignment; we look for a correlation between subjective socioeconomic status and health that persists when adjustments for these concerns are made. We then assess whether a remaining correlation necessarily implies a causal relationship between subjective status and health. We consider an alternative hypothesis: health is one of the characteristics over which individuals cognitively average when assessing their position within socioeconomic hierarchies.

Our analysis relies upon longitudinal, population-representative data on older adults from the 2000 and 2007 waves of the Indonesia Family Life Survey. The novel data include prospective subjective socioeconomic status assessments by respondents as well as prospective health information measured by trained health workers.

Our analysis is not designed to *rule out* a causal role of subjective status in health trajectories, but instead to evaluate the extent to which the association between these variables may also be attributed to the causal impact of health on subjective socioeconomic status. The endeavor extends existing research in other ways as well. Methodologically, we suggest specific tests of frequently suggested alternative explanations for the subjective status–health relationship. These methods, which rely on longitudinal data, emphasize a point largely overlooked in health sciences literature: subjective status, like "objective status," is unlikely fixed across the life course. Finally, by considering a reverse causal link between subjective status and health, we underscore the role of health as an important building block of social organization.

Subjective socioeconomic status and health

The study of perceived socioeconomic standing has a long history. In 1909, C.H. Cooley famously argued that socioeconomic hierarchies are not monolithic but instead vary according to one's vantage point (p. 285). Stratification scholars have subsequently examined the multidimensionality of class standings in-depth, with particular focus on that variation which originates in individual perceptions (Alexander, 1972; Jackman & Jackman, 1973; Kluegel, Singleton, & Starnes, 1977). To examine this variation, U.S. surveys in the 1960s and 70s asked individuals to describe their socioeconomic standing by choosing from a set of named social classes (e.g., Kluegel et al., 1977). More recently, the practice was adopted by development organizations asking respondents to rank themselves on a "ladder" (sometimes described as a Cantril (1965) ladder), providing subjective interpretations of poverty in a systematic way across populations (Ravallion & Lokshin, 2001).

A similar ladder-based survey tool was designed by Adler et al. (2000) and introduced into the health sciences literature in the United States in the late 1990s. The instrument was designed to avoid value-laden labels and a tendency of people to define themselves as "middle class" by asking individuals to consider their relative status on several domains of socioeconomic status and assess their overall position. The measure offered a useful tool for scientists interested in how social interaction and social hierarchy produce health disparities in human populations. Importantly, the approach provided a meso-level anchor for the documented macro-level effects of income inequality on population health (Schnittker & McLeod, 2005; Wilkinson, 1996).

Subsequently, a rapidly growing literature has documented a robust association between perceived socioeconomic status and biological indicators of health status – including heart rate, sleep latency, cortisol habituation to stress, body fat distribution (Adler et al., 2000), angina, glycated hemoglobin (Demakakos et al., 2008), neuro-physiological reactivity (Gianaros et al., 2007), as well as self-reported outcomes, such as depression (Demakakos et al., 2008), perceived stress (Hamad et al., 2008), physical functional status (Hu, Adler, Goldman, Weinstein, & Seeman, 2005), long-standing illness (Demakakos et al., 2008), oral health (Sanders, Slade, Turrell, John Spencer, & Marcenes, 2006), and self-rated health (Adler et al., 2000; Cundiff, Smith, Uchino, & Berg, in press; Demakakos et al., 2008; Operario, Adler, & Williams, 2004). Correlations between subjective socioeconomic status and measures of health, though varying in magnitude, appear to extend across many sub-populations in the US (Franzini & Fernandez-Esquer, 2006; Lemeshow et al., 2008; Subramanyam et al., 2012; Wolff, Subramanian, Acevedo-Garcia, Weber, Kawachi, 2010), and populations outside the US, including Norway (Friestad & Klepp, 2006), Hungary (Kopp, Skrabski, Réthelyi, Kawachi, & Adler, 2004), South Africa (Hamad et al., 2008), Taiwan (Hu et al., 2005), and Mexico (Fernald & Adler, 2008; Ritterman et al., 2009).

What explains these correlations? By design, subjective ratings reflect socioeconomic resources that strongly predict health outcomes. Not surprisingly, most studies demonstrate that when indicators of education, assets, and income are introduced into regression analyses, the correlation between subjective socioeconomic status and health diminishes in size. However, these economic covariates rarely explain the entirety (or even the majority) of the subjective status–health link (e.g., Adler et al., 2000; Hu et al., 2005).

The remaining correlation has a number of possible interpretations. The most emphasized interpretation is that the correlation is causal. The added association of subjective status and health is hypothesized to reflect the health damage inflicted by emotional and cognitive responses of individuals who assign themselves a lower socioeconomic position. This suggests that the experience of low status itself has negative physiological consequences (Marmot, 2004; Wilkinson & Pickett, 2009), which operate through stress-related neuroendocrine pathways (McEwen & Gianaros, 2010; Singh-Manoux et al., 2005).

An artifactual explanation of the association views it as spurious, resulting from the joint association of an underlying factor with both subjective status and health. For example, mental health and negative affect are likely predictors of both subjective socioeconomic status and physical health outcomes, particularly those that are self-reported and represent *perceptions* of health versus biological indicators of functioning (Bago d'Uva et al., 2008; Garbarski, 2010; Powdthavee, 2007). Nevertheless, several studies have shown that the correlation between subjective socioeconomic status and reported health, if lessened in magnitude, persists in the presence of depression and affect controls (e.g. Lemeshow et al., 2008; Operario et al., 2004).

Other underlying factors may include aspects of economic standing that are poorly measured by the standard set of socioeconomic controls. That is, the additional explanatory power of subjective socioeconomic status may derive from the measure's ability to capture characteristics like the *quality* of schooling received or wealth among the extended family (Braveman et al., 2005; Schnittker & McLeod, 2005).

Empirical tests of these alternative interpretations have proved difficult to implement. Most studies only measure subjective status at a single point in time. Few have the economic detail and the mental and physical health measures necessary to consider the aforementioned hypotheses. Others are limited by small samples (Chen & Paterson, 2006), of which few are population-representative (Reitzel et al., 2007).

In the current study, we relate subjective socioeconomic status to health indicators with a method that explicitly accounts for differences in perceptions and unmeasured socioeconomic characteristics. We then posit an alternative explanation for a remaining