Social Science & Medicine 70 (2010) 692–699

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Perceived social position and health: Is there a reciprocal relationship?

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ARTICLE INFO

Article history:
Available online 16 December 2009

Keywords:
USA
Perceived social position
Subjective social status
Socioeconomic status (SES)
Self-reported health
Health utilities index
CES-D
Older adults

ABSTRACT

Recent work exploring the relationship between socioeconomic status and health has employed a psychosocial concept called perceived social position as a predictor of health. Perceived social position is likely the "cognitive averaging" (Singh-Manoux, Marmot, & Adler, 2005) of socioeconomic characteristics over time and, like other socioeconomic factors, is subject to interplay with health over the life course. Based on the hypothesis that health can also affect perceived social position, in this paper we used structural equation modeling to examine whether perceived social position and three different health outcomes were reciprocally related in the Wisconsin Longitudinal Study, a longitudinal cohort study of older adults in the United States. The relationship between perceived social position and health differed across health outcomes—self-reported health, the Health Utilities Index, and depressive symptoms—as well as across operationalizations of perceived social position—compared to the population of the United States, compared to one's community, and a latent variable of which the two items are indicators. We found that perceived social position affected self-reported health when operationalized as latent and US perceived social position, yet there was a reciprocal relationship between self-reported health and community perceived social position. There was a reciprocal relationship between perceived social position and the Health Utilities Index, and depressive symptoms affected perceived social position for all operationalizations of perceived social position. The findings suggest that the causal relationship hypothesized in prior studies—that perceived social position affects health—does not necessarily hold in empirical models of reciprocal relationships. Future research should interrogate the relationship between perceived social position and health rather than assume the direction of causality in their relationship.

Introduction

The relationship between socioeconomic status (SES) and health has been explored in multiple ways, revealing a positive relationship between SES and health (Adler et al., 1994; Haan, Kaplan, & Syme, 1989; House & Williams, 2000; Kitagawa & Hauser, 1973; Link & Phelan, 1995; Marmot, Shipley, & Rose, 1984). SES has been operationalized in several ways when investigating its relationship with health, such as educational attainment, occupational status, income, and combinations thereof (Duncan, Daly, McDonough, & Williams, 2002). Recent work has focused on perceived social position (also called "subjective social status") as a socioeconomic predictor of health that mediates in part the effect of other measures of SES on health (Singh-Manoux, Adler, & Marmot, 2003). Perceived social position is often measured by asking respondents to assess their social position relative to others in their country or community using the pictorial representation of a ladder (Adler, Epel, Castellazzo, & Ickovics, 2000).

Several studies have found that perceived social position is associated with a variety of health outcomes even after controlling for the more objective indicators of SES. Self-reported health is often the health outcome of interest, but researchers have examined other health outcomes such as mortality (Kopp, Skrabski, Rethelyi, Kawachi, & Adler, 2004), long-standing illness (Demakakos, Nazroo, Breeze, & Marmot, 2008), composite indicators of physical health (Singh-Manoux et al., 2005), physical functioning status (Hu, Adler, Goldman, Weinstein, & Seeman, 2005), cortisol response to awakening (Wright & Steptoe, 2005), reports of stress (Adler et al., 2000; Goodman, McEwen, Dolan, Schafer-Kalkhoff, & Adler, 2005), psychological distress (Singh-Manoux et al., 2005), depressive symptoms (Collins & Goldman, 2008; Demakakos et al., 2008; Singh-Manoux et al., 2003), angina (Singh-Manoux et al., 2003), diabetes (Demakakos et al., 2008; Singh-Manoux et al., 2003), high-density lipoprotein cholesterol (Demakakos et al., 2008), respiratory illness (Singh-Manoux et al., 2003), susceptibility to respiratory infection (Cohen et al., 2008), and reduced gray matter in the anterior cingulated cortex, which indicates physiological reactivity

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doi:10.1016/j.socscimed.2009.11.007

to psychosocial stress (Gianaros et al., 2007). The link between perceived social position and health has been established across a variety of populations, such as national samples of adults in the United States (Operario, Adler, & Williams, 2004) and Hungary (Kopp et al., 2004), the Whitehall II study of British social servants (Singh-Manoux et al., 2003; Singh-Manoux et al., 2005), pregnant women in the United States (Adler et al., 2000), White and Chinese women in the United States (Ostrove, Adler, Kuppermann, & Washington, 2000), older Taiwanese (Collins & Goldman, 2008; Hu et al., 2005), older British adults (Demakakos et al., 2008), adolescents in the Midwestern United States (Goodman et al., 2005), Mexican-origin individuals in Texas (Franzini & Fernandez-Esquer, 2006), and Canadian adults (Dunn, Veenstra, & Ross, 2006).

One prominent argument is that the perceived social position items capture the "cognitive averaging" of socioeconomic and other social characteristics that in theory could be objectively observed (Singh-Manoux et al., 2005). In other words, asking respondents for their judgment of their social position allows respondents to account for more nuanced facets of their unique socioeconomic position as well as their past and future prospects. Another explanation is that perceived social position encompasses perceptions of inequality or subordination. Wilkinson (1996, 1999) made the compelling claim that income inequality is a more consistent predictor of morbidity and mortality than absolute income, based on his finding that countries with more social inequality have relatively low life expectancies. Wilkinson finds that some poor countries with little social inequality can have higher life expectancies than rich countries with more social inequality, and posits that the psychological perception of increased inequality damages health outcomes. Animal models have demonstrated that lower social rankings can lead to biomarkers of chronic stress (Sapolsky, 2004).

We choose to call the construct "perceived social position" rather than "subjective social status" because it is more in line with prominent "cognitive averaging" explanation of what perceived social position captures. "Subjective" is an adjective and coupled with "social status" implies that individuals have an inherent social position that exists in their psyche. On the other hand, "perceived" is a verb that indicates that once individuals are provided a stimulus that asks about their social position, they become aware of, recognize, or discern their social position to answer the question, but it is not assumed a priori that everyone has an inherent social position existing in their mind. In short, "subjective social status" is a characteristic of the individual, while "perceived social position" acknowledges that everyone may not have this characteristic, but will use the evidence at hand—their life history—to identify their social position once the perceived social position items are posed.

While previous studies have assumed that perceived social position affects health outcomes, it is possible that health also affects perceived social position. In addition to the idea that SES is a fundamental cause of disease (Link & Phelan, 1995), there is an interplay between SES and health over the life course, in that social selection is a "nonignorable" mechanism through which health in part can affect socioeconomic outcomes (Palloni, 2006). Given that perceived social position likely constitutes a "cognitive averaging" of socioeconomic characteristics over time (Singh-Manoux et al., 2005), perceived social position may be considered another component of SES that is subject to interplay with health, and not just a cause of health, at different points across the life course.

The present study uses structural equation models of reciprocal relationships to empirically investigate the hypothesis that perceived social position and health mutually affect one another at a given point in time. Structural equation modeling allows for models of reciprocal relationships to be compared to the alternative unidirectional model specifications using model fit statistics to determine the model that best fits the data. Self-reported health and having depressive symptoms are examined as health and mental health outcomes of interest because they are often used in studies analyzing the relationship between perceived social position and health. The Health Utilities Index (HUI) is another health outcome of interest used because, to our knowledge, no study has examined the relationship between HUI and perceived social position. Notably, other health outcomes were considered and found to not be associated with measures of perceived social position in this sample: body mass index, the number of physical symptoms reported, and the number of health conditions or illnesses reported.

Methods

Participants

The analytic sample includes participants in the Wisconsin Longitudinal Study (WLS), a one-third random sample of 10,317 men and women who graduated from Wisconsin high schools in 1957. Survey data were collected by phone and mail from the original respondents or their parents in 1957, 1964, 1975, 1993, and 2004 (Sewell, Hauser, Springer, & Hauser, 2004). The analytic sample was restricted to those WLS respondents who were working in 1993, so that all respondents are on the same metric with regard to the measures of occupation. (The distance from no occupation to the lowest occupation is qualitatively different from the distance from the lowest occupation to the second lowest occupation when using a linear scale like occupational education, which is employed here.) The sample was also restricted to those who answered the items comprising the health dependent variables ($n = 5731$). Table 1 contains the descriptive statistics for the full WLS sample and the final analytic sample.

Measures

The present study used data mainly from the 1993 and 2004 waves of the WLS. The outcome variables came from the 2004 wave and included perceived social position, self-reported health, HUI, and depressive symptoms.

Perceived social position

Perceived social position in 2004 was assessed using two items from the MacArthur Scale of Subjective Social Status that ask respondents to rank their social position compared to others in the United States and others in their community. Pictures of ladders with 10 rungs were given as part of the following items: "Think of this ladder as representing where people stand in America. At the top of the ladder are the people who are the best off—those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off—who have the least money, least education and the least respected jobs or no jobs," and "think of this ladder as representing where people stand in their communities, that is, where they live and the surrounding area." Respondents were then asked to consider their current situation and rank themselves relative to others in the United States and their community. The items were coded so that a higher score indicates better perceived social position.

The US and community comparison items yielded a Cronbach's alpha value of 0.753, were highly correlated ($r = 0.613$, $p < .001$), and appeared to load relatively well on the same underlying factor (unstandardized: US = 1.00, community = 0.79; standardized: US = 0.91, community = 0.72. A common rule of thumb is that the standardized loadings should be 0.7 or higher, because 0.7 corresponds to almost half of the variance in the indicator being explained by the factor.) However, it is possible that one of the