

Social status and health: A comparison of British civil servants in Whitehall-II with European- and African-Americans in CARDIA

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Abstract

Socioeconomic status (SES) is related to health in every industrialized society where it has been studied. Indicators include educational attainment, occupational status, and income. Subjective social status (SSS), a summative judgment of one's socioeconomic position across these dimensions, also appears to be associated with health status. The current study examines whether SSS has similar associations with SES indicators and with health outcomes among British civil servants (participants in the Whitehall-II study), and U.S. whites and blacks (participants in the CARDIA study). The comparisons shed light on social status in the U.S. and England and on the applicability of findings from Whitehall-II to both whites and blacks in the U.S.

Parallel analyses in each group examined (1) the extent to which income, education, and occupational status determine SSS ratings, (2) the association of SSS with hypertension, depression, and global health, and (3) the extent to which adjustment for education, occupation and income individually and collectively reduce the association of SSS and health outcomes. As predicted, occupation is a more important determinant of SSS in Whitehall-II than in CARDIA; adjustment for occupation reduces the association between SSS and health outcomes more for the Whitehall-II participants—especially males—than for CARDIA participants. Among the latter, education and income play relatively greater roles. Socioeconomic factors do not predict SSS scores for blacks as well as they do for the other two groups. SSS is significantly related to global health and depression in all groups and to hypertension in all groups except black males. Overall, relationships of SSS and health were stronger for Whitehall-II and white CARDIA participants than for blacks in CARDIA.

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Introduction

Within the health disparities literature, several studies document that people's own assessments of their socioeconomic status (SES) relate to their health.

Lower subjective social status (SSS) has been found to be associated with poorer self-reported global health across the age range, to poorer functional status among older people and to obesity and depression among youth (Goodman et al., 2003; Hu, Adler, Goldman, Weinstein, & Seeman, 2005; Operario, Adler, & Williams, 2004; Ostrove, Adler, Kuppermann, & Washington, 2000; Singh-Manoux, Adler, & Marmot, 2003). Lower SSS is also associated with biological risk factors including increased heart rate, greater abdominal fat deposition, greater morning rise in cortisol, and greater susceptibility to infection following exposure to a rhinovirus (Adler, Epel, Castellazzo, & Ickovicks, 2000; Cohen et al., in press; Wright & Steptoe, 2005).

A measure of SSS using a symbolic social ladder to allow individuals to place themselves relative to others in society on income, education and occupation was included in Wave 5 of the Whitehall-II study of British civil servants. SSS was significantly related to global self-rated health, depression, respiratory disease and diabetes. These associations were largely, though not completely, accounted for by the components of objective socioeconomic status—occupational grade, education and income to which the “ladder” is keyed (Singh-Manoux et al., 2003). SSS also predicted subsequent change in overall health status over 3 years, and when subjective and objective status were entered simultaneously only SSS remained as a significant predictor of change in health status (Singh-Manoux, Marmot, & Adler, 2005).

The Whitehall studies have been a rich source of data on social disparities in health. The finding of a graded association between employment grade and mortality (Marmot, Shipley, & Rose, 1984) demonstrated the power of SES to influence health all across the SES spectrum. Gradients between SES and health have been found in other countries, but direct comparisons of findings with Whitehall are difficult since the primary SES measure in Whitehall, employment grade, is specific to the civil service. Using SSS as a common measure, this paper evaluates the comparability of findings from Whitehall-II and a U.S. community-based sample (CARDIA). It examines the extent to which the components of SES contribute to SSS and its association with health, and the relationship of SSS and health in these populations.

Generalizability from Whitehall to the U.S.

Marmot, Ryff, Bumpass, Shipley, and Marks (1997) found similar relationships between SES and health in Whitehall and two U.S. samples: the Wisconsin Longitudinal Survey (WLS) and the National Survey of

Families and Households (NSFH). However, it is still unclear if Whitehall results can generalize fully to the whole U.S. population. A major difference between Whitehall and U.S. populations is the racial/ethnic make-up. Whitehall participants are primarily white and findings may not apply to groups such as African-Americans where experiences of discrimination based on race/ethnicity are confounded with SES and contribute to poorer health (Williams, 1999). Since the WLS itself has little ethnic diversity and analyses of the NSFH used race/ethnicity as a control rather than being examined directly, the study by Marmot et al. (1997) does not show the applicability of Whitehall findings to minority populations.

Additionally, because of sampling and measurement differences, associations of specific components of SES with health may differ; in comparison to community-based data, Whitehall findings may underestimate the effects of income and overestimate occupation. Whitehall has truncated variation in income; the sample of civil servants does not include the poorest and the wealthiest segments of the population. Simultaneously, the precise measurement of occupational grade may result in relatively stronger associations of occupation and health. In the U.S., the predominant occupational measure is the Duncan Socioeconomic Index, the SEI (Duncan, 1961), which reflects relative prestige of specific occupations and the sociodemographic characteristics of individuals in those occupations. These and other factors can vary considerably from one work setting to another, rendering the SEI a less valid measure of job conditions than employment grade. Employment grade is measured with virtually no error and participants are part of the same organization and know where they stand relative to others. Thus, the occupation component of SES may be more strongly related to outcomes in Whitehall than in U.S. community samples, and the relative strength of associations of the three SES indicators with health may differ. In Whitehall, occupation is measured with less error than are income and education and should show stronger relationships with health outcomes than will the latter. This is less likely to be the case in community samples.

Finally, cultural differences between the U.S. and England may play an additional role. Fuhrer et al. (2002) compared employees of a large French utility company to Whitehall-II. Although similar gradients were found between occupational level and global health, there were country-specific differences in behavioral and psychosocial predictors of health. The authors speculated these reflected cultural differences in evaluations of self-rated health. Americans and the

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