Socioeconomic differences in severe back morbidity

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Commentary on the paper by Kaila-Kangas *et al*
(*Occup Environ Med*, April 2006)*

Socioeconomic disparities in morbidity and mortality have become a topic of major interest in public health. Voluminous evidence demonstrates the importance of socioeconomic status (SES) for an impressive range of health conditions: obesity, depression, cardiovascular disease, chronic headache, etc. In the April issue of the journal, Kaila-Kangas and colleagues¹ reported on SES differences in first hospitalisation for back disorders.

There is little consensus about the mechanism of the SES–health gradient. Proposed causal pathways—not necessarily mutually exclusive—include material deprivation, adverse “lifestyle” conditions (smoking, poor nutrition, etc), inadequate access to health information, and relative deprivation leading to social mistrust.²

Debate has also arisen over the “best” indicator of SES,^{3,4} and especially whether it should be assessed in terms of an individual’s social status or prestige (often in terms of personal access to goods, services, and knowledge) or at the level of a group’s social and economic control of resources.^{5,6}

While key variables such as education, grade of employment, income, and assets are correlated in the general population, they do not always give the same results across outcomes and populations. Further, these characteristics may interact; for example, racial differences in physical and mental health were less pronounced when adjusted for income and education, although perceived racial discrimination was still related to health status.⁷ This highlights the importance of understanding the mechanism(s) involved, which may vary by outcome.

A similar SES gradient exists in musculoskeletal disorders as for other health outcomes. Low back pain (LBP) incidence and severity are inversely

related to blue collar versus white collar status, income, and education.^{8,9} Similar trends have been noted for neck and upper extremity disorders, knee osteoarthritis, and so on. The effect of SES on LBP has been independent of “lifestyle” factors such as smoking, leisure-time physical activity, body mass index, alcohol consumption, or marital status.^{10,11}

A large part of the socioeconomic gradient in musculoskeletal disorders (MSDs) may be due to differences in the type of work performed, since lower SES jobs consistently involve more physically strenuous and repetitive work. Marmot,¹² for one, has argued for the central role of low control over one’s life circumstances, especially in the workplace. Psychosocial conditions at work and physical load were both worse for blue collar than white collar employees, as well as for women compared with men.¹³ In each of these subgroups, such working conditions predicted the development or worsening of MSDs over a 10 year follow up period. Indirect evidence for the effect of SES acting through working conditions may be found in a 25 year follow up of Finnish adolescents, among whom SES in adolescence was not predictive of MSD symptoms in adulthood, although MSDs were inversely associated with both level of education attained and monthly salary.¹⁴

Kaila-Kangas *et al* have examined the simultaneous effects of individuals’ education and group level occupational status (manual/non-manual), which is also a rough proxy for physical workload. They report 30–60% more hospitalisations among blue collar than white collar workers, and a higher effect among younger workers, especially men. There was no effect modification by gender, unlike findings reported by others.^{11,15,16}

There are numerous and potentially competing explanations for these findings: (1) actual socioeconomic differences in the occurrence of back morbidity, mediated through physical job demands; (2) socioeconomic

differences in how physicians evaluate patients’ need for hospital care (bias in medical decision making); (3) confounding of manual work by occupational psychosocial factors such as low job control; (4) manual work being a risk factor not for occurrence, but for progression to more severe forms of morbidity after back pain has occurred (that is, prognostic rather than aetiological); (5) socioeconomic differences in how people “cope with their work” (that is, their physical and psychological ability to meet the demands of their jobs after they have developed back pain); and (6) confounding of manual work by exposure to non-occupational risk factors for LBP, either aetiological and/or prognostic.

In addition, within job strata, higher education was protective, especially in men. It is an interesting and unexplained observation. A low level of education leads to limited occupational choices and thus to jobs with more psychosocial strain as well as physical load; relatively few blue collar workers have more than 12 years of education. Nonetheless, education seems to contribute to the risk of back morbidity beyond its effect on occupation.

Many investigators have treated SES as a potential confounding variable that requires adjustment in statistical analysis. However, to the extent that the components of SES act through or are surrogates for working conditions, both physical and psychosocial, such analyses may in fact serve to obscure the role of those exposures. Our understanding of how to reduce the unequal burden of LBP morbidity will benefit in the future from further elucidation of the separate and combined effects of these factors.

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