

## **SES and Health: Gender as Moderator and the Effects of Measurement**

### **Background**

Empirical evidence presents conflicting accounts of whether socio-economic status (SES) gradients in health differ by gender. Studies attempting to answer this question are complicated by the difficulty in choosing appropriate SES measures for each sex. Occupational classifications, for example, are often based on categorisations that existed before women had a significant presence in the labour force. Further, it is not clear how best to assign SES to people who are married or cohabiting. It is well accepted that income, wealth, and consumption measures should be at the household level; on the other hand, education and occupation are typically individual-level measures. This is intuitively appealing; income can be shared between multiple individuals whereas education cannot. However, reflection on the links between SES and health makes this distinction less obvious. Class and social capital, concepts central to SES, will be similar for all members of a household and therefore the social privileges conferred by status frequently apply to both partners. It is easy to imagine that in a couple with discordant levels of education, the more highly educated partner can share some of the health benefits of that education with his/her partner. The observation that married and cohabiting individuals tend to have health behaviours similar to their partners (Ross, Mirowsky, & Goldstein, 1990) could be an example of this.

On the other hand, some of the links between SES and health are firmly attached to individuals. Even income and wealth, which are perhaps more easily transferred than other common SES indicators, are not necessarily treated as a common household resource. It has not been unusual for women to not know how much their male partner earns or to not have access to such earnings (Shavers, 2007).

While the social benefits of education or occupational status may be passed on to a spouse, education's empowering benefits and occupation's exposure to hazardous working conditions are firmly one's own. Thus the question remains: to what extent should SES be a household measure?

There is some evidence that the choice of an SES measure based on a woman's own characteristics, her (male) partner's, or some combination affects whether SES-health gradients are observed for women (Bartley, Martikainen, Shipley, & Marmot, 2004; Koskinen & Martelin, 1994; Krieger, Chen, & Selby, 1999; Montez, Hayward, Brown, & Hummer, 2009). However, many of these studies have limited generalisability with samples drawn from British civil servants, Finland – a country with particularly high levels of participation by women in the workforce, and patients of particular health centers in California.

This study has two aims: to test for moderation of SES by gender, and to examine the sensitivity of the results to measurement of SES based on an individual's own versus their partner's characteristics and shared or household characteristics. Obesity has been chosen as the health outcome of interest because there have been many observations that the SES gradient appears stronger in women than in men (Sobal & Stunkard, 1989; McLaren, 2007) but no formal tests of this hypothesis. This study will contribute to theory insight into how SES is best conceptualized in health research.

## **Data**

This study will employ Health and Retirement Study (HRS) data. This may seem an unlikely source of data to study obesity given that old age is associated with weight loss. However, the CDC reports that obesity remains highly prevalent even at advanced ages. For example, data from the 2007-2010 NHANES show more than a third of Americans aged 65 and over are obese, and this increases to more than 40% when age is limited to 65-75 year olds (Fakhouri, Ogden, Carrol, Kitt, & Flegal, 2012). The attraction of the HRS to examine gender differences and measurement effects lies in its measures of both households and individuals. This allows considerable flexibility in constructing a measure of SES that reflects intra-household commonalities and potential differences.

*Dependent Variable* The HRS data contains self-reported height and weight. These will be used to calculate BMI, from which a continuous and a categorical ( $BMI \geq 30 = 1$ ) variable will be created.

*Independent Variables* The latent predictor of interest, SES, will be proxied with measures of income, education, current or most recent occupation, and wealth. Five sets of these measures will be alternately modelled. For all participants, the first set will comprise respondents' own characteristics. For participants who are married or cohabiting, the remaining sets will be based in turn on their partners' characteristics, the highest of their own and their partners' characteristics, the lowest of their own and their partners' characteristics, and a combination of their own and their partners' characteristics. In addition to main effects, genderxSES interactions will be included.

### **Analytic Plan**

Although the HRS is a panel data set that would allow for longitudinal methods, it is likely that SES will be relatively stable amongst this sample during the study (although there are obvious exceptions such as the transition from employment to retirement and the 2008 financial crisis). This is less likely to have been the case for respondents below retirement age and those remaining in the workforce. Age will be used to identify a sub-sample likely to have sufficient temporal variation in SES to benefit from longitudinal methods. This sub-sample will be analysed with fixed-effects models, while OLS and logistic regression models will be created for the whole sample aged 55-75. The dependent variable in the OLS and logistic models will come from the wave in which each respondent's highest BMI was reported while aged 75 or younger, while the independent variables will be as reported one wave prior, unless the dependent variable is from wave 1. All analyses will employ appropriate weights to account for the complex survey design. The analyses will be repeated with widowed, divorced, and separated respondents initially treated as single and then as partnered. All analyses will be stratified by race/ethnicity.

Fixed effects models will include controls for marital status, age, and living arrangements. OLS and logistic models will include the same control variables as well as a gender main effect and a proxy for childhood SES. Year dummies will be included in the fixed effects models, while a continuous variable for time will be included in the OLS and logistic models.

## Expected Findings

It is predicted that both the SES main effects and the genderxSES interaction terms will be significant in the models using respondents' own SES. The main effects of education and income are predicted to have similar coefficients regardless on whose characteristics are measured, while occupation may have a coefficient of greater magnitude for respondents' own measures. Coefficients of interaction terms for education and income are predicted to have smaller absolute values for the three household measures of SES than for respondents' own SES. In summary, it is anticipated that this study will find evidence in support of a moderating effect of gender on the SES-obesity relationship and sensitivity to the use of SES measures at the individual or household level.

## References

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