The associations of social class and social stratification with patterns of general and mental health in a Spanish population

Carles Muntaner,1 Carme Borrell,2 Joan Benach,3 M Isabel Pasarín2 and Esteve Fernandez4

Accepted 28 February 2003

Background Social class, as a theoretical framework, represents a complementary approach to social stratification by introducing social relations of ownership and control over productive assets to the analysis of inequalities in economic, political, and cultural resources. In this study we examined whether measures of social class were able to explain and predict self-reported general and mental health over and above measures of social stratification.

Methods We tested this using the Barcelona Health Interview Survey, a cross-sectional survey of 10 000 residents of the city’s non-institutionalized population in 2000. We used Erik Olin Wright’s indicators of social class position, based on ownership and control over productive assets. As measures of social stratification we used the Spanish version of the British Registrar General (BRG) classification, and education. Health-related variables included self-perceived health and mental health as measured by Goldberg’s questionnaire.

Results Among men, high level managers and supervisors reported better health than all other classes, including small business owners. Low-level supervisors reported worse mental health than high-level managers and non-managerial workers, giving support to Wright’s contradictory class location hypothesis with regard to mental health. Social class indicators were less useful correlates of health and mental health among women.

Conclusions Our findings highlight the potential health consequences of social class positions defined by power relations within the labour process. They also confirm that social class taps into parts of the social variation in health that are not captured by conventional measures of social stratification and education.

Keywords Social class, social stratification, socioeconomic status, mental health, self-rated health
because they have generally been selected for pragmatic considerations, i.e. availability of data, rather than for theoretical reasons.

Social class is defined by relations of ownership or control over productive resources (i.e. physical, financial, organizational). Social class has important consequences for the lives of individuals: the extent of an individual’s legal right and power to control productive assets determines an individual’s strategies and practices devoted to acquire income and, as a result, determines the individual’s standard of living. Thus the class position of ‘business owner’ compels its members to hire ‘workers’ and extract labour from them, while the ‘worker’ class position compels its members to find employment and perform labour.

Although there have been few empirical studies of social class and health, the need to study social class has been noted by social epidemiologists. Social class provides an explicit relational mechanism (property, management) that explains how economic inequalities are generated and how they may affect health. For example, in a recent study, a team of US epidemiologists found that low-level supervisors, who could hire and fire front line personnel but did not have policy or decision-making authority in the firm, showed higher rates of depression and anxiety disorders than both upper management (who had authority and decision-making attributes) and non-management workers (who had neither). This finding was predicted by the contradictory class location hypothesis (supervisors are in conflict with both workers and upper management and do not have control over policy) but was not predicted or explained by indicators of years of education or income gradients. Moreover, the income hypothesis would have failed to provide a mechanism and would have led to the expectation that supervisors, because of their higher incomes, would present lower rates of anxiety and depression than workers. A handful of studies in psychiatric epidemiology suggest that social stratification and social class are not equivalent: rather, they capture different parts of the social variation in population mental health. Therefore, the purpose of our study was to examine the relationships between measures of social stratification (education, British Registrar General Classification [BRG]), measures of social class (Wright’s social class indicators, i.e. relationship to productive assets), and indicators of general health and mental health.

The measures of social class used in our investigation originate from a social class model that has been accumulating empirical support over the last 20 years (e.g. refs 8–14). Wright’s social class indicators assess ownership of productive assets, and control and authority relations in the workplace (control over organizational assets). Property rights over the financial or physical assets used in the production of goods and services generate three class positions: employers, who are self-employed and hire labour; the traditional petit bourgeoisie, who are self-employed but do not hire labour; and workers who sell their labour. These social class positions reflect the relational properties underlying economic inequality. Indicators of productive asset ownership gauge a relational mechanism that generates economic inequality (i.e. deriving income from owning property). Both ‘neo-material’ and psychological mechanisms suggest that owners might present better overall health and mental health than workers. Large property owners tend to be wealthier than others and thus might be expected to experience the greater material well-being that is conducive to better health. In addition, large owners enjoy the predictability and control in life that are predictive of better mental health. They are not subject to the stressors of unpredictability and lack of control associated with relying exclusively on salaries or wages for income. As a result, they may enjoy better health. Even small property owners can derive economic security from wealth, which is more concentrated among property owners than income. However, since most small businesses go bankrupt, the suitability of this hypothetical mechanism to small capitalist class positions is less evident. These hypothetical mechanisms linking property ownership to economic security were part of the underlying rationale for this study.

Control over organizational assets (power and control in the workplace) is determined by two kinds of relations at work: (1) influence over company policy (e.g. making decisions over number of people employed, products or services delivered, amount of work performed, size and distribution of budgets); and (2) sanctioning authority (granting or preventing pay raises or promotions, hiring, firing, or temporarily suspending a subordinate). The supervisory and policy making functions of managers allow them to enjoy greater wealth than workers, for example, through income derived from shares of stock, incentives, bonuses, and hierarchical pay scales. As a consequence, we anticipate that managers will present better health and mental health than non-managers, in accordance with the hypothesis derived from asset ownership. Furthermore, workplace authority relations add another mechanism that may impact health, i.e. control over one’s work and the ability to extract labour effort from others, increasing one’s sense of control and predictability at work. Indeed, the work organization literature, including the Whitehall study, suggests that in addition to greater access to income, wealth, and job security, control over work may be a mechanism linking managerial class positions to better health.

Following Erik Wright’s class theory, we defined and measured managerial class positions according to policy-making power within the labour process and supervisory functions over others’ labour. Social stratification (e.g. occupational categories) does not define or measure relational mechanisms within the labour process. Popular stratification measures such as occupational prestige categories cannot generate specific hypotheses because they are compatible with many potential mechanisms (e.g. occupational prestige categories, income, authority).

According to Wright’s ‘contradictory class locations’ hypothesis, supervisors are in a special position (i.e. a contradictory class position in production relations), subjected both to the pressure of upper management to discipline the workforce and the antagonism of subordinate workers, while exerting little influence over company policy. This situation may expose supervisors to high demands and low control at work, which are risk factors for mental disorders. Therefore, supervisors are more likely to present poorer mental health than managers.

Wright includes skills/credentials relations as part of his map of class positions (Figure 1, the expert, semi-skilled, and ‘unskilled’ class positions). Experts are defined as those holding jobs that require skills, particularly accredited credentialled skills, which are scarce relative to their demand by the market. Experts enjoy a credential rent: their wages are usually above the cost of the reproduction of their training. Semi-skilled and
‘unskilled’ class positions are defined as jobs requiring skills that are in large supply, particularly un-credentialed skills. Because credentials provide access to labour markets with higher pay and less hazardous working conditions, experts would be expected to have better health status than ‘semi-skilled’ and ‘unskilled’ workers.

Our interest lay in the public health significance of two social class relations in populations—ownership and managerial control. We hypothesized that both positions would confer unique protection against ill health. In addition, we predicted that supervisors would exhibit worse health than either managers or workers. Finally, we hypothesized that experts would have better health than less-skilled workers. Both self-reported health, a valid predictor of mortality,25 and general mental health26 were optimal for our purposes as they capture a population’s average physical and mental health27 rather than the prevalence of specific conditions or high risk. Furthermore, both indicators have been associated with social risk factors and are useful for needs assessment and public health interventions.28

Methods

Study population, sample, and data collection

The sampling frame was the 2000 non-institutionalized population of Barcelona city (1 500 000 inhabitants, Catalonia, Spain). Data were collected as part of the 2000 Barcelona Health Interview Survey (HIS), a cross-sectional population survey carried out approximately every 5 years since 1983.29 We generated a representative stratified sample of the 10 000 non-institutionalized residents using the 10 districts of the city as strata. In each stratum a random sample of residents was obtained. With a sample of 10 000, the alpha error was 4.5% and the maximum global error 1% (this global error is one-half the width of the desired sample CI). The information was collected through face-to-face interviews carried out at home between February 2000 and March 2001. The study reported here included the working population 16–64 years of age (n = 4219). The age distribution of our sample closely matches the age distribution obtained in the 2001 survey of the Barcelona employed population.30

Health and mental health variables

Perceived health status was measured through a single question: ‘Would you say your overall health is very good, good, fair, bad or very bad?’ A dichotomous outcome measure was created with fair, bad or very bad coded 1 and good and very good coded zero (i.e. 1 = fair, bad, or very bad; 0 = very good, good). Mental health was measured with the 12-item version of the General Health Questionnaire (12-GHQ26). Responses were summed and those scoring ≥3 were classified as having a high probability of a psychiatric disorder.

We dichotomized the two variables for the following reasons: (1) previous studies have dichotomized self-rated health25 as well as Goldberg’s GHQ (we used the standard cut-off score26), which renders our approach consistent with the literature; (2) research on the cognitive aspects of survey responses shows that respondents tend to dichotomize evaluations of their own health status27; (3) dichotomized self-reports of health have good predictive validity25 and (4) low cell frequency in the intermediate categories of self-rated health advised towards dichotomizing for the analysis.

Social class and social stratification variables

Erik Wright’s map of class positions is presented in Figure 1. Indicators for each of the 12 class positions were obtained from a set of survey questions. Class positions in the property dimension were obtained through two questions inquiring whether the respondent was self-employed and, if self-employed, the number of people working for her. Self-employed who hired at most one single worker were considered to occupy the petit-bourgeois class position; self-employed having between 2 and 10 workers were defined as small employers; and self-employed with more than 10 workers occupied the capitalist class position.1 Class positions in the organizational control dimension were determined by questions assessing whether the respondent worked as a manager (i.e. ‘gerentes’ and ‘directores’) and what the authority relations were in the workplace (i.e. the number of workers supervised), yielding three class categories: managers (those with the power to influence company policy and supervise one or more subordinates); non-managerial supervisors (those with the power to supervise one or more subordinates only); and non-managerial workers (those with no power
as defined above. Information on the skill dimension (i.e. experts, semi-skilled workers, and ‘unskilled’ workers) was obtained through the occupation and educational credentials of those interviewed. Professionals, university professors, managers with a university degree, and technicians with a university degree were considered experts. Managers, technicians, non-university teachers, craftsmen, tradesmen with university degrees, and clerks with a university degree were considered semi-skilled. Other occupations were considered ‘unskilled’. This measure of social class has been previously used in Spanish surveys. In multivariate analyses, managers and expert supervisors were combined due to the small number of respondents in managerial class positions.

As a measure of social stratification, we used the Spanish adaptation of the British Registrar General Classification (BRG; which includes five strata from BRG I to BRG V). The Spanish version of the BRG was developed by comparing occupations in Britain and Spain. In most instances occupations fell into the same stratum. However, in a few cases British occupations were assigned to different social strata in Spain. For example, writers and journalists in Spain were located in BRG I. Non-manual occupations were assigned to BRG III and manual occupations to BRG IV (whereas in the British classification, both manual and non-manual skilled occupations are part of BRG III). The Spanish version of the BRG has been widely used in Spain and is the measure of social stratification recommended by the Spanish Epidemiological Society.1, 32 In this study the respondent’s occupation was used to assign each interviewee in the sample to one of the five strata.

We used the highest completed level of education as another measure of social stratification. Education was grouped in the following strata: illiterate or no education, which included people with 0–4 years of schooling, primary education (5–11 years of schooling), secondary education (12–15 years of education), and university or graduate school (≥16 years of schooling).

Data analysis

Age-standardized percentages by social class and educational levels were calculated using the direct method for each health-related variable, with the whole study population as reference. Logistic regression models were adjusted by age (continuous) to calculate the association with health-related variables. Reference categories for the odds ratios (OR) were class I for the BRG classification, university or graduate studies for education, and managers and expert supervisors for the Wright class positions. We chose these positions as reference categories because they had lower percentages of poor health and poor mental health than other positions.

First, we obtained separate regression models for each of the social class and social stratification variables. Then we generated two multivariable-adjusted models, one with age, Wright’s social class indicators, and educational level, and the other with age, Wright’s class indicators, and the BRG classification. Educational level and BRG classification were not included simultaneously in the models because of their high correlation. Goodness of fit was obtained using the Hosmer and Lemeshow test.33 All analyses included weights derived from the complex sample design and were stratified by gender.

Results

The study sample included 2345 men and 1874 women. As Table 1 shows, 10.7% of men and 14.2% of women reported poor health status; almost 9% of men and 15% of women reported poor mental health. The majority of participants were <45 years, had achieved secondary education or a university degree and belonged to BRG occupational classes III and IV. The distributions of the BRG social stratifications are not comparable to those in the general population because only the employed (16–64 years of age) were included in this study. Because older Spaniards fall into lower strata than younger cohorts, this resulted in an over-representation of BRG I participants and an under-representation of BRG II participants in our sample. Using Wright’s social class positions, semi-skilled workers represented one-fifth of the population and ‘unskilled’ workers represented 31% of men and 47% of women.

Tables 2 and 3 show the health-related variables by social class and social stratification in men and women. Men who had less education and belonged to BRG classes IV and V had higher percentages of poor perceived health and poor mental health.
Using Wright’s social class indicators, those in capitalist class positions did not have better health. The best health indicators were found for expert and semi-skilled managers and for expert supervisors. Poor perceived health varied from 2.7% among expert supervisors to 14% among ‘unskilled’ workers; poor mental health varied from 3.1% among semi-skilled managers to 14% among ‘unskilled’ supervisors. These percentages were similar to age-standardized percentages (Table 2). Higher percentages of women with less education and those located in BRG classes IV and V had poor perceived health and poor mental health. Wright’s social class positions showed a better health profile for both managers and experts. Poor perceived health varied from 2.7% among semi-skilled managers to 14% among ‘unskilled’ workers; poor mental health varied from 3.1% among semi-skilled managers and ‘unskilled’ supervisors to 14% among ‘unskilled’ workers. These percentages were almost three times (OR = 2.9, 95% CI: 1.3–6.6) as likely to manifest poor mental health as managers and expert supervisors. In the multivariate models that included social stratification (i.e. education or BRG) and Wright’s social class positions (Models 1 and 2 in Table 4), the majority of these associations were retained; the OR was >4 for small employers, semi-skilled and ‘unskilled’ supervisors, and ‘unskilled’ workers. The addition of the stratification indicators to the models, including social class, improved the model fit according to the Likelihood Ratio Test (Table 4). Among women, using Wright’s class indicators, significant associations emerged for BRG classes III–V, education, and ‘unskilled’ workers. In Models 1 and 2, significant associations were retained; the OR was 2.9 for small employers, ‘unskilled’ supervisors, and ‘unskilled’ workers. The addition of social stratification indicators improved the fit of the social class model (Table 4).

Among men, secondary (i.e. high school) education was associated with poor mental health. ‘Unskilled’ supervisors were almost three times (OR = 2.9, 95% CI: 1.3–6.6) as likely to manifest poor mental health as managers and expert supervisors, the reference category. In multivariate models the only association that was significant was with ‘unskilled’ supervisors. The addition of social stratification indicators did not improve the fit of the social class models. Among women, BRG classes IV and V, low education, and most of Wright’s social class positions were significantly associated with poor mental health in

---

### Table 2 Distribution (number of participants, percentage, and age-standardized percentage) of health-related variables by measures of social stratification and social class. Working men population, 16–64 years old. Barcelona 2000

<table>
<thead>
<tr>
<th>Social stratification and social class</th>
<th>Poor perceived health</th>
<th>Poor mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n %</td>
<td>n %</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>41 5.5</td>
<td>5.9  5.9 7.4</td>
</tr>
<tr>
<td>Secondary</td>
<td>64 8.8</td>
<td>9.4  75 10.3</td>
</tr>
<tr>
<td>Primary</td>
<td>117 15.9</td>
<td>15.2  68 9.2</td>
</tr>
<tr>
<td>Less than primary</td>
<td>28 3.5</td>
<td>15.8  10 8.4</td>
</tr>
<tr>
<td><strong>British Registrar General classification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>24 5.3</td>
<td>6.0  29 6.7</td>
</tr>
<tr>
<td>II</td>
<td>10 3.4</td>
<td>4.4  31 10.5</td>
</tr>
<tr>
<td>III</td>
<td>79 11.1</td>
<td>10.3  65 9.1</td>
</tr>
<tr>
<td>IV</td>
<td>114 15.0</td>
<td>14.5  69 9.0</td>
</tr>
<tr>
<td>V</td>
<td>20 16.8</td>
<td>16.9  14 11.6</td>
</tr>
<tr>
<td><strong>EO Wright classification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capitalists</td>
<td>2 4.3</td>
<td>4.4  4 8.7</td>
</tr>
<tr>
<td>Small employers</td>
<td>25 13.4</td>
<td>12.9  18 9.7</td>
</tr>
<tr>
<td>Petit bourgeoisie</td>
<td>24 12.4</td>
<td>8.1  18 9.2</td>
</tr>
<tr>
<td>Managers experts</td>
<td>2 3.4</td>
<td>2.6  2 3.4</td>
</tr>
<tr>
<td>Managers ‘unskilled’</td>
<td>0 0</td>
<td>1 3.1</td>
</tr>
<tr>
<td>Supervisors</td>
<td>3 2.7</td>
<td>4.8  8 7.1</td>
</tr>
<tr>
<td>Supervisors semi-skilled</td>
<td>19 13.4</td>
<td>11.8  13 9.2</td>
</tr>
<tr>
<td>Supervisors ‘unskilled’</td>
<td>15 12.8</td>
<td>14.0  17 14.3</td>
</tr>
<tr>
<td>Workers experts</td>
<td>9 4.4</td>
<td>5.2  14 7.0</td>
</tr>
<tr>
<td>Workers semi-skilled</td>
<td>47 9.3</td>
<td>9.9  48 9.6</td>
</tr>
<tr>
<td>Workers ‘unskilled’</td>
<td>102 14.0</td>
<td>14.3  67 9.2</td>
</tr>
</tbody>
</table>

### Table 3 Distribution (number of participants, percentage, and age-standardised percentage) of health-related variables by measures of social stratification and social class. Working women population, 16–64 years old. Barcelona 2000

<table>
<thead>
<tr>
<th>Social stratification and social class</th>
<th>Poor perceived health</th>
<th>Poor mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n %</td>
<td>n %</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>44 6.8</td>
<td>7.5  77 11.9</td>
</tr>
<tr>
<td>Secondary</td>
<td>70 12.2</td>
<td>13.7  101 17.6</td>
</tr>
<tr>
<td>Primary</td>
<td>109 19.6</td>
<td>17.8  81 14.6</td>
</tr>
<tr>
<td>Less than primary</td>
<td>42 44.7</td>
<td>31.4  21 22.3</td>
</tr>
<tr>
<td><strong>British Registrar General classification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>14 5.3</td>
<td>5.7  27 10.2</td>
</tr>
<tr>
<td>II</td>
<td>18 7.7</td>
<td>8.3  34 14.6</td>
</tr>
<tr>
<td>III</td>
<td>76 11.3</td>
<td>12.3  87 12.9</td>
</tr>
<tr>
<td>IV</td>
<td>89 14.8</td>
<td>20.0  87 18.0</td>
</tr>
<tr>
<td>V</td>
<td>69 32.4</td>
<td>26.3  45 21.0</td>
</tr>
<tr>
<td><strong>EO Wright classification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capitalists</td>
<td>2 12.5</td>
<td>14.0  2 11.8</td>
</tr>
<tr>
<td>Small employers</td>
<td>15 15.0</td>
<td>14.2  17 16.8</td>
</tr>
<tr>
<td>Petit bourgeoisie</td>
<td>15 13.5</td>
<td>21.5  15 13.4</td>
</tr>
<tr>
<td>Managers experts</td>
<td>0 0</td>
<td>0 1 4.5</td>
</tr>
<tr>
<td>Managers semi-skilled</td>
<td>0 0</td>
<td>0 2 33.3</td>
</tr>
<tr>
<td>Managers ‘unskilled’</td>
<td>0 0</td>
<td>0 6 10.0</td>
</tr>
<tr>
<td>Supervisors</td>
<td>3 2.7</td>
<td>4.8  8 7.1</td>
</tr>
<tr>
<td>Supervisors semi-skilled</td>
<td>19 13.4</td>
<td>11.8  13 9.2</td>
</tr>
<tr>
<td>Supervisors ‘unskilled’</td>
<td>15 12.8</td>
<td>14.0  17 14.3</td>
</tr>
<tr>
<td>Workers experts</td>
<td>9 4.4</td>
<td>5.2  14 7.0</td>
</tr>
<tr>
<td>Workers semi-skilled</td>
<td>47 9.3</td>
<td>9.9  48 9.6</td>
</tr>
<tr>
<td>Workers ‘unskilled’</td>
<td>102 14.0</td>
<td>14.3  67 9.2</td>
</tr>
</tbody>
</table>

---

Table 2 Distribution (number of participants, percentage, and age-standardized percentage) of health-related variables by measures of social stratification and social class. Working men population, 16–64 years old. Barcelona 2000

Using Wright’s social class indicators, those in capitalist class positions did not have better health. The best health indicators were found for expert and semi-skilled managers and for expert supervisors. Poor perceived health varied from 2.7% among expert supervisors to 14% among ‘unskilled’ workers; poor mental health varied from 3.1% among semi-skilled managers to 14.3% among ‘unskilled’ supervisors. These percentages were similar to age-standardized percentages (Table 2). Higher percentages of women with less education and those located in BRG classes IV and V had poor perceived health and poor mental health. Wright’s social class positions showed a better health profile for both managers and experts. Poor perceived health was more frequent among ‘unskilled’ workers (19%). Mental health was worse among ‘unskilled’ supervisors (17.9%) (Table 3).

Tables 4 and 5 present the results from bivariate and multivariate logistic regression models for self-reported health and mental health, respectively. Among men, those in BRG classes III, IV, and V were more likely to have poor health than those in the reference category of BRG class I; those with less than a university degree were more likely to have poor health than those with a university degree; and most class positions (except for capitalists and expert workers) had worse health than the reference category of expert and semi-skilled managers and expert supervisors. In the multivariate models that included social stratification (i.e. education or BRG) and Wright’s social class positions (Models 1 and 2 in Table 4), the majority of these associations were retained; the OR was >4 for small employers, semi-skilled and ‘unskilled’ supervisors, and ‘unskilled’ workers. The addition of the stratification indicators to the models, including social class, improved the model fit according to the Likelihood Ratio Test (Table 4). Among women, using Wright’s class indicators, significant associations emerged for BRG classes III–V, education, and ‘unskilled’ workers. In Models 1 and 2, significant associations were present only for those with less than primary education and those in BRG classes IV and V. The addition of social stratification indicators improved the fit of the social class model (Table 4).

Among men, secondary (i.e. high school) education was associated with poor mental health. ‘Unskilled’ supervisors were almost three times (OR = 2.9, 95% CI: 1.3–6.6) as likely to manifest poor mental health as managers and expert supervisors, the reference category. In multivariate models the only association that was significant was with ‘unskilled’ supervisors. The addition of social stratification indicators did not improve the fit of the social class models. Among women, BRG classes IV and V, low education, and most of Wright’s social class positions were significantly associated with poor mental health in
bivariate regressions. However, in multivariate Model 1 (adjusted by education), the only associations that remained significant were those involving semi-skilled workers and those with less than primary education; and in Model 2 only BRG class V remained associated with poor mental health (Table 5).

As an alternative to Wright’s detailed social class structure, we explored social class relations of property, organizational, and credential assets separately from each other. Results indicate that poor health status is associated with supervisor, non-managerial, semi-skilled, and unskilled class positions among men and with semi-skilled and unskilled class positions among women. Poor mental health was also associated with semi-skilled and unskilled class positions among women. Among both men and women, credentials are associated with general health after adjustment for education and BRG. Having a ‘credentialed’ occupation is protective of health over and above the amount of education needed to gain access to that kind of occupation. That is, the same amount of education would not protect a person’s health that much if that person did not use it to gain a more advantaged social class.

Discussion

The findings from the Barcelona 2000 HIS support several of our hypotheses with regard to the relationships between social class and health. Among men, managers and supervisors with high credentials had better self-perceived health than men in other class positions, most notably semi-skilled and ‘unskilled’ workers, semi-skilled and ‘unskilled’ supervisors, petit bourgeois, and small employers. Although the findings for women were consistent with those for men, the managerial (i.e. organizational assets) hypothesis could not be confirmed among women or for mental health outcomes, except for low-level supervisors, due to large CI, particularly in multivariate models.

Neither social stratification nor social class are related to mental health in men. This is common to the GHQ. 34–36 It is important to note that although social class was not associated with mental health, the stratification measures, including the education measure, were not associated with mental health either. On the other hand, among women both measures of social stratification were associated with mental health.

Among those in capitalist class positions, poor self-perceived health was rare; however, the small number of representatives of this class in our sample (46 men and 16 women) reduced the power of tests involving ownership relations in multivariate analyses. This problem has also been noted in sociological surveys. 37 In addition, as shown in a British survey on class structure, 38 capitalists who participate in general surveys are more prone to be misclassified than members of other class positions, and further the wealth and power held by large
employers makes them less likely to be reached or to be motivated to participate in surveys. This may be a limitation of contemporary survey research that could be overcome with qualitative research (e.g. ref. 39). The poor health of the petit bourgeoisie in our study men in low-level supervisory class positions (i.e. ‘unskilled’ supervisors) showed a higher rate of poor mental health than semi-skilled and ‘unskilled’ workers. This is consistent with the notion that ‘contradictory class relations’ are mentally hazardous. Multivariate results showing that ‘unskilled’ supervisors, but not semi-skilled or ‘unskilled’ workers, were more likely to present poor mental health than managers and expert supervisors, are also consistent with this. Low-level supervisors are the de facto management to workers, while simultaneously occupying the position of workers in relation to upper management, and they are in conflict with both. These findings are consistent with the results from a survey conducted in Baltimore (USA), in the mid 1990s. As expected, experts were found to enjoy better health than non-experts. The health consequences of the skill-credentials dimension may be crucial for individuals occupying dual class positions. Scarce credentials (i.e. expertise) confer a notable health benefit to low-level supervisors. However, because Wright’s indicators of skills/credentials are similar to occupational stratification, it is unclear whether the skill/credential measure is actually a measure of social stratification or a measure of social class proper.

The finding that ‘credentialed’ occupations are protective of health over and above the amount of education needed to gain access to that occupation is consistent with a ‘materialist’ rather than a ‘psychosocial’ interpretation. Using the 3rd European Survey on Working Conditions, they found that in the European Union (EU) small employers were at greater risk of reporting high levels of stress and fatigue and low dissatisfaction and absenteeism.

Interestingly, in our study men in low-level supervisory class positions (i.e. ‘unskilled’ supervisors) showed a higher rate of poor mental health than semi-skilled and ‘unskilled’ workers. This is consistent with the notion that ‘contradictory class relations’ are mentally hazardous. Multivariate results showing that ‘unskilled’ supervisors, but not semi-skilled or ‘unskilled’ workers, were more likely to present poor mental health than managers and expert supervisors, are also consistent with this. Low-level supervisors are the de facto management to workers, while simultaneously occupying the position of workers in relation to upper management, and they are in conflict with both. These findings are consistent with the results from a survey conducted in Baltimore (USA), in the mid 1990s.
population samples, the number of categories in Wright's class framework should perhaps be reduced. Additionally, in studies of social class inequalities in health, specific class positions (managers, capitalists) may need to be over-sampled, just as ethnic and racial minorities must be over-sampled.

Among men, neither the occupation-based BRG nor education seems to be a better predictor of self-perceived health than social class. Among women, we did not obtain strong associations. However, non-measured aspects of gender (exposure to worse working conditions and lack of access to labour markets; household labour and social networks) could account for these results.

Our findings add to the literature on comparative indicators of social inequalities and highlight the importance of control over material resources, or in Wright’s terms, control over organizational assets. Our results confirm recent studies in which social class, understood as a social relation of ownership or control over productive assets, explains some aspects of the variation in health outcomes, while social stratification explains others.

We can draw several conclusions from this study. Our findings suggest that surveys in social epidemiology could benefit from over-sampling large employers in order to assess the health impact of capitalist class positions, which are poorly represented in general population samples. The poor mental health found among low-level supervisors, replicating a previous study, suggests that inquiry into the mental health effects of contradictory class positions may be a fruitful venue for future research. Furthermore, our study findings indicate that control over organizational assets, as captured by the power to hire and fire labour and decision-making power over company policy, may be an important determinant of social inequalities in health. Thus, our findings highlight the potential health consequences of social class positions defined by power relations within the labour process. They also confirm that social class taps into parts of the social variation in health that are not captured by conventional measures of social stratification and education.

Acknowledgements

This study was supported with funds from the Municipal Institute of Public Health of Barcelona, Spain. The authors want to thank Wylbur Hadden for his helpful comments.

References

Commentary: Relating social structure and health

M Bartley

Muntaner et al.1 have taken on one of the major issues for social epidemiology today. For many years now, we have seen study after study showing relationships between health and some measure or other of socioeconomic position and circumstances. But, with honourable exceptions, studies have rarely faced up directly to the problems involved in the conceptualization and measurement of socioeconomic position (SEP).2-6 There is seldom any account of how it has been decided to use one or other method. Studies are then compared with little consideration for the fact that some use indicators of income, others use indicators of prestige, and others use education.7,8 Even to make the distinction between class and prestige is likely to sound rather strange to many readers.

As Muntaner et al. point out, the most commonly used measures of SEP have been indicators of position in a ‘system of stratification’. The term stratification is used in sociology to refer to social hierarchies in which individuals or groups can be arranged along a ranked order of some attribute. Income is one such. A more popular one is social status or prestige.9 In the US, there have been several large scale surveys that ask respondents to rank large numbers of occupations10 in terms of prestige. However, these lists cannot be exhaustive. The most widely used measures in the US therefore extrapolate prestige for all other occupations in widespread use: the Goldthorpe schema (and its developments) and the Wright schema.14-17 Muntaner et al. describe clearly the classificatory principals of the Wright schema, which they used in their paper. Official statistics in Great Britain now

References

use a development of the Goldthorpe schema, the National Statistics’ Socio-Economic Classification (NS-SEC). What these have in common are a concern with power and control at the workplace: control over one’s own working day and work career and power over the work of others. Thus, the conceptual basis for social class is totally different to that underlying stratification. Most importantly, class is an inherently relational concept. It is not defined according to an order or hierarchy, but according to relations of power and control.

According to Wright, power or authority are ‘organisational assets’ that allow some workers to benefit from the abilities and energies of other workers. The hypothetical pathway linking class (as opposed to prestige) to health is that some members of a work organization are expending less energy and effort and getting more (pay, promotions, job security, etc.) in return, while others are getting less for more effort. So the less powerful are at greater risk of running down their stocks of energy and ending up in some kind of physical or psychological ‘health deficit’. French industrial sociologists called this ‘l’usure de travail’—the usury of work. At the most obvious level, the manager sits in an office while the routine workers are exposed to all the dangers of heavy loads, dusts, chemical hazards and the like. But we are all familiar with other situations: the academic supervisor who takes credit for the work of a graduate student or junior researcher; the manager who takes the credit for the efficiency of a secretary. The same process occurs in every organization where power is unequal. So the use of the Wright schema in health research, as Muntaner et al. point out ‘Provides an explicit relational mechanism that explains how economic inequalities are generated and how they may affect health’.

The authors have used, as their contrast to the Wright class measure, not one of the American socioeconomic status measures but a Spanish derivation of the British Registrar-General’s classification (RGSC). The RGSC has been described variously as an indicator of ‘skill level’ or of ‘general standing in the community’ (which sounds like prestige). But there was never any system behind the measure, most occupations were given the same class as in the previous decennium unless a member of the decision making group happened to have enough knowledge of any specific one to raise questions. The story used to be told about one of the civil servants deciding on the class position of a newly emerging occupation on the basis of whether he would like his daughter to marry one. This is, of course, a perfectly valid method for the allocation of caste membership in ethnographic studies. Given that the measure has been widely used in Spanish epidemiological studies, and that it is used here as an indicator of the RG classification to indicate a prestige dimension of ‘stratification’, it seems a reasonable choice.

Muntaner et al. directly address the extent to which the use of a specific class measure actually tells us any more than we could learn from a measure of income or of prestige by considering the health of people in some of Wright’s ‘contradictory class locations’. Supervisors have higher incomes and prestige than non-supervisory workers, so on this basis their health should be better. However, taking account of the relationships between supervisors and other workers might lead to a different expectation. There are contradictory pressures on supervisors, in that they are subject to the authority of those above them but also suffer the antagonism of those below. Sure enough, the worst mental (not physical) health in the authors’ analysis was found amongst ‘unskilled supervisors’; the group thought most likely to have responsibility without very much power. This effect seems to have been independent of any association between Wright class and education or the Spanish version of the RG schema.

An important point to emerge from the results is the distinction between ‘expertise’ and ‘education’. In fact, the relative weakness of education itself as a predictor of health is striking. After adjustment for educational level, ‘experts’ of various kinds seem to have relatively low risk of ill-health, both mental and physical. The paper is therefore showing us that it is not education per se that favourably influences health, but the access education gives to more dominant (or less-dominated) social positions. Of course, any examination of the relationships of class or education to health needs to take account of the relevant national labour market. There may be very large differences between the experience of being the owner of a small or medium sized company in Spain, the UK, and the US. But in many countries, the employment situation of someone designated as an expert within a large organization, say a university or government bureaucracy, may be little different to an extended vacation. The owner/manager of a company employing 20 people (who counts as a capitalist by the Wright criteria), on the other hand, may be consigned to near-slavery by comparison.

Indiscriminate use of measures of social position with multiple theoretical bases (or none at all) has hindered progress from the description of health inequality towards its explanation. It has been all too easy to slip into the kind of lazy thinking that proceeds: ‘high social class’ equals general superiority in lots of ways equals better health, what do you expect?’. Relational social class measures may show weaker associations to some health outcomes than prestige or income. But then we will at least be able to eliminate some potential causal pathways and concentrate on those that are better supported by the data.

References

7 Bartley M, Sacker A, Firth D, Fitzpatrick R. Understanding social variation in cardiovascular risk factors in women and men: the


