

Mental and physical health in students: The role of economic circumstances

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Objectives. To investigate the relationship between the physical, social and psychological health of students and their financial circumstances.

Design. A survey design was used.

Methods. An opportunity sample of 482 university students from two London universities (one old and one new) completed a questionnaire providing information on demographic characteristics, financial circumstances, smoking, drug and alcohol use. Physical and psychological well-being were assessed using a 14-item inventory of physical symptoms, the SF-36 and General Health Questionnaire (GHQ-12).

Results. All sub-scales of the SF-36 (except Physical Functioning) and the GHQ indicated levels of health significantly below population norms. Poorer mental health was related to longer working hours outside university and difficulty paying bills. Those who had considered abandoning study for financial reasons had poorer mental health, social functioning, vitality and physical health and were also heavier smokers. Being in debt was associated with knowing people involved in prostitution, crime or drug dealing to help support themselves financially.

Conclusion. Results suggest that the financial circumstances of students may be having an adverse impact on their health.

In recent years rapid expansion in the number of students enrolling in further and higher education in the UK has occurred. Numbers in full-time education increased by 55% between 1990 and 1995. Real spending has not matched this growth in numbers (Central Statistical Office, 1997). The 1990s have seen successively the freezing of student grants, yearly reductions of 10%, the introduction of tuition fees and abolition of the mandatory

grant. As students have turned to loans, many are moving into debt, and are being required to work long hours to maintain viable living standards. One study found almost 60% worked regularly during term time, with a third of these working over 20 hours each week (Lindsay & Paton-Saltzberg, 1993). The National Union of Students has estimated the mean debt for final year students at £4,800 (Swanton, 1997) and there is the possibility that the resulting financial stresses will put many at risk of dropping out from higher education (Edmundson & Carpenter, 1995).

Several studies, both in the UK (Berry, 1995; National Union of Students, 1994; Rickinson & Rutherford, 1995; Windle, 1993) and internationally have documented financial problems in student populations. A National Union of Students (1994) survey found 53% in debt, while Berry's (1995) study of women attending a northern English university found over 90% unhappy with their financial resources—with many expressing the possibility of abandoning study because of the difficulties. Smaller estimates for financial problems were reported by Rickinson and Rutherford (1995), though their finding that only 18.5% reported severe problems is tempered by the fact that their sample comprised first-year students. The international data presents a similar picture of students under financial strain. In a survey of Irish undergraduate students (Tyrrell, 1992), financial problems loomed large with managing money seen as the most important stressor among first-year students (reported by 44% as stressful). Of Dunkel-Schetter and Lobel's (1990) US students, 40% described financial responsibilities as being often or very often overwhelming and 60% of Frazier and Schauben's (1994) sample indicated they had experienced financial problems within the preceding 6 months. Given the diverse composition and locations of these studies, variation in estimates of financial difficulties is not surprising, though all are consistent in depicting financial problems in a large proportion of students. It should be remembered that as well as being a source of stress during study, low income is an obstacle to returning to study (Sands & Richardson, 1984) and predicts levels of depression and anxiety in those who do.

Financial difficulties in a population are of interest because a strong body of evidence points to associations between financial stress and ill-health. These may be direct, arising, for example, from poor nutrition and bad housing or indirect arising from the social meanings and implications of having relatively little money (Wilkinson, 1996). Difficulty in paying bills for example was a major factor in explaining social class inequalities in depression and psychological well being in British civil servants (Marmot, Ryff, Bumpass, Shipley, & Marks, 1997). Although the above studies have documented financial difficulties in students, their possible effects upon health and psychological functioning have received little attention. Following recent work by Roberts, Towell, and Golding (1998) the current study sets out to examine in greater depth the relationships present between students' economic circumstances, health behaviours, lifestyle and mental and physical health.

Method

Participants and design

An opportunity sample of students from two universities in London (one old, one new; old universities refer to those established before 1992 in the UK, new universities were established after this date from existing Polytechnics and institutions of Higher Education) were asked to complete a questionnaire providing

information on demographic characteristics, financial circumstances, lifestyle (smoking, drug and alcohol consumption), physical and psychological well-being). Completed questionnaires were received from 482 students (old university, $N = 162$; new university, $N = 320$; males = 174; females = 307)—a response rate of 66%. Mean age of respondents were 23.4 years ($SD = 4.8$) for males and 24.2 ($SD = 6.3$) for females. The sample were predominantly undergraduates (87.4%) and mainly comprised those in full-time education (85.9%).

Questionnaire items

Seven sub-scales of the UK version of the SF-36 were included in the questionnaire; Physical Functioning, Social Functioning, Role Limitations due to Physical Problems, Role Limitations due to Emotional Problems, Vitality, Bodily Pain and General Health Perceptions (Ware, Snow, Kosinski, & Gandek, 1993). High scores on these are indicative of good health. The 12-item version of the General Health Questionnaire (GHQ; Goldberg & Williams, 1988) was used to measure mental health and an inventory of 14 different physical symptoms based on those used in the UK General Household Survey (OPCS, 1979) to assess health in the 2 weeks prior to questionnaire completion. A range of health behaviours was also assessed. These included alcohol use (units of alcohol consumed during the preceding week), smoking (numbers of cigarettes smoked) and recreational drug use (a summary score was calculated based on the number of different drugs used currently and since beginning study). Further items enquired into the degree of difficulty experienced in paying bills, the number of hours worked in paid employment outside university and whether students had considered abandoning study for financial reasons. Other items asked whether respondents knew of any students (male or female) who had engaged in drug dealing, prostitution or crime to help support themselves financially.

Analysis

General linear models (SPSS 8.0) adjusted for age and sex were used to assess the relationship between the hours worked outside university, difficulty in paying bills and GHQ scores.

A logistic regression model adjusted for age and sex was used to examine the relationship between debt and whether students had consulted a GP in the preceding 2 weeks. Satisfaction with the most recent consultation was examined via a linear model adjusted for age and sex.

Separate linear models adjusted for age and sex were constructed for each SF-36 variable, the GHQ-12, symptom score, units of alcohol consumed in the preceding week, cigarettes smoked and drug use. These were used to assess whether the above parameters discriminated between students who had considered dropping out for financial reasons and those who had not.

A structural equation model (Dunn, Everitt, & Pickles, 1993) was empirically derived to describe the pathways linking financial stress to mental health. The model was analysed by maximum likelihood estimation using EQS version 5.7 (Bentler, 1998) under the assumption of multivariate normality. For an appropriate model to fit the data satisfactorily chi-square values must be non significant with an index of fit greater than 0.90.

Results

Descriptive statistics

Just under half the sample (43.4%) were currently in debt, with an average amount owed of £3 403 ($SD = £4 511$). Amount of debt increased progressively through years 1 (£2 403.93) 2 (£2 638.57) and 3 (£5 593.02) of undergraduate study ($F(2,414) = 7.68$; $p = .0006$). A large majority ($N = 331$, 72%) experienced some difficulty paying bills, with 56 (12.2%) reporting great or very great difficulty. Almost half ($N = 227$, 47.1%) the sample were working in addition to studying. For these an average working week amounted to 18.73 hours ($SD = 12.58$). Just under 10% ($N = 42$) indicated that they had seriously considered dropping out of study for financial reasons.

Table 1 contains descriptive statistics for the GHQ and SF-36. In comparison to population data for people of comparable age and sex, Physical Functioning scores appear similar. Bodily Pain, Role Limitations Physical, Role Limitations Emotional, General Health Perceptions, Vitality, Social Functioning and mental health (GHQ) were found to be significantly worse than established norms. Of these, the psychological and psychosocial dimensions of health (Roberts, Hemingway, & Marmot, 1997) appear to show substantially poorer functioning. For example, 29.7% of respondents' GHQ scores were in excess of 1 SD above the population mean for their age and sex, while 43.5% of respondents produced Social Functioning scores more than 1 SD below the population mean.

A number reported knowing someone involved in prostitution ($N = 15$, 3.1%), crime ($N = 49$, 10.2%), or drug dealing ($N = 106$, 22%). Those in debt were more likely to answer in the affirmative for prostitution ($\chi^2(1) = 4.09$; $p = .04$; Relative Risk = 3.18 {0.98–10.33}), drug dealing ($\chi^2(1) = 18.74$; $p = .00001$, Relative Risk = 2.75 {1.73–4.39}), and crime ($\chi^2(1) = 14.80$; $p = .0001$, Relative Risk = 3.46 {1.79–6.70}).

Multivariate modelling

Amount of debt was unrelated ($p = .38$) to whether students had consulted a GP during the preceding 2-week period but the larger the debt the greater the dissatisfaction with their most recent visit (beta = .11; $p = .04$). Higher GHQ scores were related to longer working hours outside university (beta = .16; $p = .015$), and difficulty in paying bills (beta = $-.21$; $p < .00005$). People who had considered abandoning study for financial reasons had poorer mental health as evidenced by GHQ scores (beta = $-.26$; $p < .00005$), greater Role Limitations due to emotional problems (beta = .11; $p = .016$), lower levels of Social Functioning (beta = .15; $p < .002$), and Vitality (beta = .18; $p = .0001$). Their physical health also appeared to be worse as indicated by scores on General Health Perceptions (beta = .17; $p = .0004$), Physical Functioning (beta = .12; $p = .01$), Bodily Pain (beta = .14; $p = .003$), and Role Limitations due to physical problems (beta = .11; $p = .019$). They were also heavier cigarette smokers (beta = $-.17$; $p = .0002$) and engaged more in recreational drug use (beta = $-.09$; $p = .06$). Figure 1 shows adjusted means for these variables according to whether or not they had considered dropping out

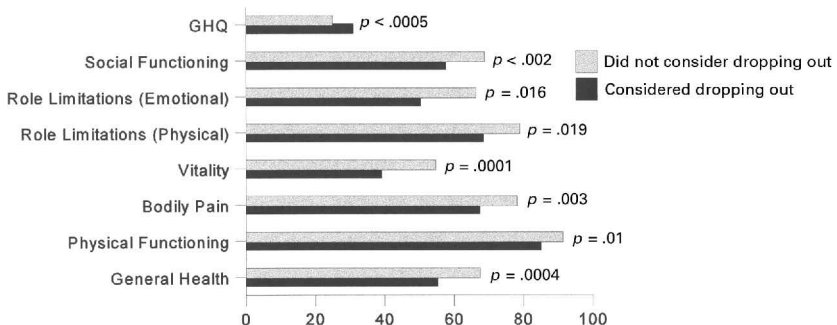


Figure 1. Health status by whether students had considered abandoning study for financial reasons (means adjusted for age and sex).

Table 1. Mean (SD) scores and sample sizes for GHQ-12 and SF-36 variables

	Sample mean	Weighted mean ^a	Sample SD	N	Population mean ^b	% > 1 SD Below norms = poorer health	% > 1 SD Above norms = better health
Physical Functioning	90.94	88.84	15.39	467	88.40	8.9	0
Role Limitations Physical	77.92	77.24*	33.98	463	85.82	26.2	0
Bodily Pain	77.61	75.72*	21.81	468	81.49	26.3	0
General Health Perceptions	66.33	66.92*	20.89	464	73.52	24.8	8.9
Social Functioning	67.64	67.30*	21.59	468	88.01	43.5	0
Role Limitations Emotional	64.96	62.05*	40.80	470	82.93	34.8	0
Vitality	53.40	52.67*	24.03	466	61.13	30.5	8.7
GHQ	25.47	25.47*	6.55	468	23.01	29.7	8.8

* $p < .0001$.^aSample means weighted according to age and sex distribution of SF-36 population survey (Jenkinson, Coulter, & Wright, 1993) and Health and Lifestyle Survey (Cox, 1987) for the GHQ. To enable suitable comparisons age was grouped as in the earlier study; 18-24, 25-34, 35-44, 45-54 and 55-64 years.^bFrom Jenkinson, Coulter, & Wright (1993) and Cox (1987).

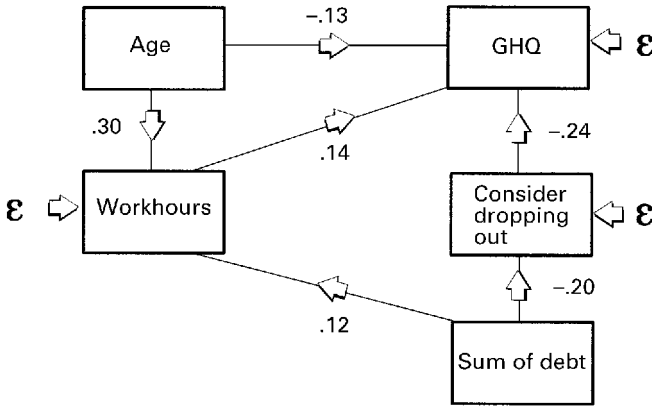


Figure 2. Structural equation model: relationship between financial circumstances and mental health ($\chi^2(4) = 3.52$; $p = .47$; CFI = 1.00). Numbers denote standardized regression coefficients ($p < .05$).

for financial reasons. Differences between respondents who had considered dropping out for financial reasons, and those who had not, remained statistically significant on all the above parameters after adjustment for number of cigarettes smoked and the magnitude of these effects exhibited little change. No significant differences were observed on the basis of symptom score or alcohol consumed in the previous week ($p > .10$ in all cases).

Structural equation modelling

The structural equation model presented in Fig. 2 described two pathways through which financial stress can impact on students' mental health. All model parameters were statistically significant ($p < .05$). First, the likelihood of considering abandoning study increases alongside rising debt and impacts negatively on mental health. Second, as debt increases, longer hours are worked, which in turn impacts negatively on mental health. This model was found to fit the data well ($\chi^2(4) = 3.52$; $p = .47$) with a comparative fit index (CFI) equal to 1.00. The hypothesized model provides a significant improvement in fit compared to the null model of independence based on a chi-square difference of 64.80 with 10 d.f. ($p < .001$).

Discussion

Our analyses showed indicators of physical ill-health and psychological well-being in the current sample were poorer than the population norms established for people of the same age and sex. There appears to be grounds for linking this adverse health to the experience of financial difficulties. This builds on previous work which has found financial problems in students related to poor academic performance, poor psychological functioning and depression (Hodgson & Simoni, 1995).

As the current study is cross-sectional, caution is urged in interpreting these results. A relationship between poor health and financial problems could arise in two ways—either financial stresses directly affect health or people with poorer health may be more likely to get into financial difficulty—the latter would be most likely to operate through denial of

opportunities for work. However, although the possibility of health being causally related to financial difficulties cannot be eliminated in this study, the fact that financial difficulties are also associated with longer working hours makes it unlikely. It is difficult to envisage any obvious explanation why those with poorer health, whether mental or physical, would work longer hours. In fact, in modern highly competitive economies such as we live in, it is people with poorer health who are likely to be denied the opportunity to work (Bartley & Owen, 1996; Fox, 1990).

Further research where changes in both health and financial circumstances could be tracked is desirable for elucidating the causal mechanisms behind the relationships we have observed. At present, however, these data suggest that the magnitude of any adverse effects resulting from economic circumstances are greatest within the psychosocial domain. Our finding that amount of debt was significantly related to the level of dissatisfaction with the most recent GP consultation is consistent with adverse effects on psychological well-being and could be an indication that financial stresses increase students' propensity to complain. If so, then this may also manifest itself through increasing complaints about their academic management.

Even if it were to be conclusively demonstrated that financial stress during student life had no direct effect on physical health, concern for the physical health of the children of students would still remain. A large majority ($N = 31$, 79%) of those in our sample who had children, reported difficulty in paying bills and 46.2% reported being in debt. Economic hardship for students who are parents is likely to mean hardship for their offspring as well. The direct link between poor childhood socioeconomic conditions and future morbidity (Barker, 1990; Lundberg, 1991; Roberts, 1997; Wright, Waterson, & Aynsley-Green, 1994) which numerous studies have shown, suggests that adverse consequences of student hardship on the health of future generations may ensue. With around 2.5 million people currently in further and higher education in the UK (for 19–20 year olds around one-third of the available population is in Higher Education, Wisniewski, 1997), the burden of the ensuing potential ill-health should not be dismissed lightly.

Although our study makes no claims to be a random sample of the UK student population, where comparisons are possible, results are broadly similar to representative national student surveys; in terms of the percentages in debt, amount of money owed and proportion working in addition to studying. However, we have not established that the relationships we posit exist in the wider UK student population or in other international contexts. It is feasible that the cultural context of higher education in the UK contributes to the observed patterns. In other national contexts where the self-financing of students has been long established, the impact of financial stress may be mediated differently or attenuated by established coping strategies. The ubiquitous nature of the links between financial status and ill-health which have been established in epidemiological research however lead us to hypothesize that similar relationships would be found in student populations. Poor student health carries implications for the provision of health services within institutes of Higher Education as well as the wider community within which they are situated. Widespread psychological ill-health in the student body is more than likely to affect the quality of life of a substantial section of the population and we would include here the issues of crime and prostitution in student life which have until now remained largely anecdotal (Barret, 1997). We therefore argue that the subject of student finance

and ill-health is one that should unite psychologists and those concerned with public health.

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References

- Barker, D. J. (1990). The fetal and infant origins of adult disease. *British Medical Journal*, *301*, 1111.
- Barret, D. (1997). Students on the game. *The Times Higher Education Supplement*, July 18.
- Bartley, M., & Owen, C. (1996). Relation between socioeconomic status, employment and health during the economic change, 1973–1993. *British Medical Journal*, *313*, 445–449.
- Bentler, P. M. (1998). *EQS: Structural Equations Manual*. Encino, CA: Multivariate Software, Inc.
- Berry, M. (1995). The experience of being a woman student. *British Journal of Guidance and Counselling*, *23*, 211–218.
- Central Statistical Office (1997). *Social Trends 27*. London: HMSO.
- Cox, B. D. (1987). *Health and lifestyle*. ESRC Data Archive, University of Essex.
- Dunkel-Schetter, C., & Lobel, M. (1990). Stress among students. *New Directions for Student Services*, *49*, 17–34.
- Dunn, G., Everitt, B., & Pickles, A. (1993). *Modelling covariances and latent variables using EQS*. London: Chapman and Hall.
- Edmundson, T., & Carpenter, C. (1995). *Student's financial circumstances 1994. A report*. University of Westminster, London.
- Fox, J. W. (1990). Social class, mental illness, and social mobility: The social selection drift hypothesis for serious mental illness. *Journal of Health and Social Behaviour*, *31*, 344–353.
- Frazier, P. A., & Schauben, L. J. (1994). Stressful life events and psychological adjustment among female college students. *Measurement and Evaluation in Counselling and Development*, *27*, 280–292.
- Goldberg, D. P., & Williams, P. (1988). *A users guide to the General Health Questionnaire*. Windsor: NFER-Nelson.
- Hodgson, C. S., & Simoni, J. M. (1995). Graduate student academic and psychological functioning. *Journal of College Student Development*, *36*, 244–253.
- Jenkinson, C., Coulter, A., & Wright, L. (1993). Short form 36 (SF36) health survey questionnaire: Normative data for adults of working age. *British Medical Journal*, *306*, 1437–1440.
- Lindsay, R. O., & Paton-Saltzberg, R. (1993). *The effects of paid employment on the academic performance of full-time students in higher education*. Oxford Brookes University.
- Lundberg, O. (1991). The impact of childhood living conditions on illness and mortality in adulthood. *Social Science and Medicine*, *36*, 1047–1052.
- Marmot, M., Ryff, C. D., Bumpass, L. L., Shipley, M., & Marks, N. F. (1997). Social inequalities in health: Next questions and converging evidence. *Social Science and Medicine*, *44*, 901–910.
- National Union of Students (1994). *Values for money: NUS survey of student finance and attitudes to money management*. National Union of Students.
- OPCS (1979). *General Household Survey 1977*. London: HMSO.
- Rickinson, B., & Rutherford, D. (1995). Increasing undergraduate student retention rates. *British Journal of Guidance and Counselling*, *23*, 161–172.
- Sands, R. G., & Richardson, V. (1984). Educational and mental health factors associated with the return of mid-life women to school. *Educational Gerontology*, *10*, 155–170.
- Roberts, H. (1997). Children, inequalities and health. *British Medical Journal*, *314*, 1122–1125.
- Roberts, R., Hemingway, H., & Marmot, M. (1997). Psychometric and clinical validity of the SF-36 in the Whitehall II study. *British Journal of Health Psychology*, *2*, 285–300.
- Roberts, R., Towell, A., & Golding, J. (1998). Student finance and mental health. *The Psychologist*, *11*, 489–491.
- Swanton, O. (1997). Burden of debt. *Guardian Education*, iii, June 3.

- Tyrrell, J. (1992). Sources of stress among psychology undergraduates. *The Irish Journal of Psychology*, 13, 184–192.
- Ware, J. E., Snow, K. K., Kosinski, M., & Gandek, B. (1993). *SF-36 Health Survey: Manual and Interpretation Guide*. Boston, MA: The Health Institute, New England Medical Center.
- Wilkinson, R. G. (1996). *Unhealthy societies*. London: Routledge.
- Windle, R. (1993). *Student Income and Expenditure Survey 1992/1993*. London: Research Services Limited.
- Wisniewski, D. (Ed.) (1997). *Annual Abstract of Statistics*. London: HMSO.
- Wright, C. M., Waterson, A., & Aynsley-Green, A. (1994). Effect of deprivation on weight-gain in infancy. *Acta Paediatrica*, 83, 357–359.

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