

## **Socio-economic status and subjective well-being**

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### **ABSTRACT**

Increasing socio-economic status is associated with increasing levels of subjective well-being. Subjective well-being is in turn associated with physical and mental health. In this study, socio-economic gradients in subjective well-being are investigated in a large cross-section of the British population. Higher socio-economic groups are more satisfied with life and have fewer psychosomatic symptoms. They also have higher incomes, and higher levels of perceived personal control of their lives. Path analysis is used to demonstrate that income explains neither their higher level of personal control nor their greater well-being. It is argued that the nature of high status work itself provides increased autonomy, and through this, increased well-being. Income does not appear to be causally important, since low earners with high perceived control have greater subjective well-being than high earners with low control. Implications for socio-economic gradients in health are discussed.

Key words: subjective well-being, social gradients, health inequalities, socio-economic status, National Child Development Study

## INTRODUCTION

A number of studies have shown that the subjective well-being (SWB) of individuals in developed societies is positively correlated with their socio-economic status (SES) (Diener, Sandvik, Seidlitz, & Diener, 1993; Haring, Stock, & Okun, 1984). This is significant for health outcomes, as both the presence of positive affective states and the absence of negative ones have been associated with reduced mortality and morbidity from multiple causes in long-term prospective studies (Cuijpers & Smit, 2002; Danner, Snowdon, & Friesen, 2001; Koivumaa-Honkanen et al., 2000; Penninx, Leveille, Ferrucci, van Eijk, & Guralnik, 1999). Such associations are thought to arise because self-perceived affective states are linked to physiological stress indicators and markers of immune functioning (Stephens, Wardle, & Marmot, 2005). Possibly as a consequence of this association, high SES individuals have greater immune competence than members of low SES groups (Evans et al., 2000). Thus, a socioeconomic gradient in SWB may well be related to the persistence of socioeconomic gradients in objective health outcomes, which are a feature of all developed societies (Marmot 2003), and which endure despite generally rising levels of affluence.

One obvious mechanism for the correlation of SES and SWB is that the higher incomes characteristic of high SES allow people to obtain goods and services that improve their experienced quality of life. Such a mechanism is implied, for example, in economists' findings of positive correlations between income and happiness (Di Tella, MacCulloch, & Oswald, 2003). However, it is unclear that there is any strong effect of absolute income on SWB. Over the last few decades, incomes across the developed world have increased dramatically, allowing massive increases in the consumption of goods and services for all social classes, but there has been no concomitant increase in average SWB (Myers & Diener, 1996). Longitudinal studies have shown that as individuals increase their disposable income over time, their material aspirations increase at the same pace, resulting in no increase in satisfaction (Easterlin, 2003). Moreover, individuals who experience sudden income increases soon return to their baseline SWB levels (Brickman, Coates, & Janoff-Bulman, 1978).

The positive correlation between SES and SWB in cross-sectional studies, and the lack of positive correlation between income and SWB over time, are in apparent tension with each other. There are several possible explanations for the two effects.

One is that what is relevant for SWB is not absolute income, but income relative to others (Frank, 1999). Thus, within a set of people at a given moment in time, those with higher relative incomes would be more satisfied, but if the absolute incomes of the whole set were increased uniformly over time, average satisfaction would remain the same. There is some empirical evidence for such effects, with income relative to a comparison norm being related to job satisfaction (Clark & Oswald, 1996).

Alternatively, it may be that high SES provides other kinds of advantages than increased income, and it is through these that the SWB benefits come about. Higher socio-economic groups have greater control over the circumstances and direction of their work than lower ones. They are more likely to be employers or to work on their own account, less likely to be employed by others, and less likely to be directly supervised. Indeed, one contemporary approach to the conceptualisation of social class makes control in occupational settings, rather than income or social standing, the primary defining criterion (Goldthorpe, 1987; Mills & Evans, 2003). Empirical studies have found that measures of perceived job control and decision latitude correlate positively with measures of SES that are derived on separate grounds (Karasek & Theorell, 1990; Pelfrene et al., 2001). It would be possible for incomes to grow over time without changing psychosocial parameters like job control. For example, the economic growth of the last few decades means that a manual worker today earns more in real terms than a lawyer in a previous generation. However, there is no evidence that the extent of personal control in manual work as compared to law, has changed at all.

It is plausible that variation in the experience of personal control at work could account for social variation in SWB. Work is one of the major sources of SWB, and along with income is the one of those sources that varies most systematically with SES. Previous research suggests that it is the extent of job control, rather than the level of demands, that predicts job satisfaction (Pelfrene et al., 2001), and low control is associated with absenteeism and poor mental and physical health (Godin & Kittel, 2004; Karasek & Theorell, 1990; Warr, 1990). Indeed, the low control experienced in lower-grade occupations has been advanced as the causal mechanism in social gradients in cardio-vascular disease in particular, and morbidity and mortality in general (Bailis, Segall, Mahon, Chipperfield, & Dunn, 2001; Bosma et al., 1997; Bosma, Schrijvers, & Mackenbach, 1999; Marmot, 2003). More generally, the

inability to control events is a central component of many psychological theories of stress (see e.g. Taylor, Repetti, & Seeman, 1997; Weiss, 1972).

This paper examines socio-economic gradients in SWB in a large British cohort, the National Child Development Study (NCDS). The NCDS is an interdisciplinary, longitudinal, multi-function study not designed specifically for the current purposes. Consequently, there are some limitations in the measures available. However, the sample size and social representativeness are exceptional, and moreover, the data are unusual in containing a positive measure (life satisfaction) and a negative measure (malaise) of SWB, along with both objective socio-economic data (income and social class), and psychosocial measures (specifically perceived control). Thus the data allow the statistical disentangling of different factors that are partly correlated. The purposes of the present paper are, firstly, to determine whether there are socio-economic gradients in SWB, and secondly, what the roles of income and of perceived control are in mediating such relationships.

## METHODS

The National Child Development Study is an ongoing, multi-disciplinary study of all individuals born in Britain between March 3<sup>rd</sup> and March 9<sup>th</sup> 1958. The cohort members were subjects of a perinatal study, and were followed through childhood using medical examinations, psychometric investigations, school records and questionnaires. In adulthood, the cohort members have continued to be contacted to for interviews or questionnaires every few years, most recently in 2000, at the age of 42. The data for the present paper are taken from the 2000 interviewer-administered questionnaire. Of the initial 1958 cohort of 17,414 individuals, 11,419 participated in 2000, though not all of them responded to every question.

Socio-economic status in British national statistics, and the NCDS, is based on occupation and was measured until recently using the Registrar General's social classes (Leete & Fox, 1977). This five-fold classification (I Professional, II Managerial and Technical, III Skilled, IV Semi-skilled, V Unskilled and routine) is based on the rated social standing of different occupations, though in practice this correlates moderately with income and with typical educational attainment. Social class could not be assigned to the unemployed, those not working, or parents bringing up children full-time, which left 9592 participants with a social class. In order to treat

social class as a continuous SES variable, it was coded as a number between 1 and 5 with Class I=5 and Class V=1, in order for increasing values on the scale to reflect increasing SES.

Income information was gathered in the questionnaire, with an option to state it in weekly, monthly, or annual terms. All responses have been converted here to an annual basis for comparability. Both gross and take-home incomes were asked for, but the latter have been used here as that variable has the larger number of complete entries. There are a significant number of values missing, due to people not working, being unwilling to disclose income, or not specifying the period to which the sum given applied. There are 7954 complete records for income.

The feeling of personal control in life was assessed using three items (table 1). In each of these, the respondent had to endorse one of two statements about their life, one expressing a feeling of control, and one a lack of control. For each of the items, the positive response was assigned the value 1 and the negative response the value 0. The personal control measure used here is the sum of these three responses, and thus varies from 0 (lowest; feeling of no control at all) to 3 (highest; feeling usually in control and able to get what one wants). This measure was available for 11221 participants.

SWB was measured in two ways. First, the participants were asked to indicate on a scale of 1 to 10 how they felt their life had turned out so far (the Life Satisfaction variable). This is a similar positive measure to that used in many other studies of SWB (Myers & Diener, 1995). Though some investigators have preferred multi-item scales (Hills & Argyle, 2002), single item measures have been shown to have satisfactory reliability and validity for most SWB research (Diener & Larsen, 1984; Sandvik, Diener, & Seidlitz, 1993). 11269 participants answered the Life Satisfaction item.

Participants also completed a Malaise Inventory (Hirst & Bradshaw, 1983; Rodgers, Pickles, Power, Collishaw, & Maugham, 1999). This is a 24-item checklist of psychological and somatic symptoms (fatigue, low mood, anxiety, irritability, aches, sleeping problems, indigestion etc.) that ultimately derives from the Cornell Medical Index (Brodman, Erdman, Lorge, Gershenson, & Wolff, 1952). It has been widely used as a negative measure of psychosomatic well-being (the fewer symptoms checked, the greater the well-being). The number of participants with a score for the Malaise Inventory was 11264.

## RESULTS

There are significant SES gradients in both Life Satisfaction, which increases from lowest to highest SES groups, and Malaise, which decreases from lowest to highest SES groups (figure 1). Correlations between all the variables studied are shown in table 2. There is a manifold of significant correlations, with increasing SES being positively associated with Income, Personal Control, and Life Satisfaction, and negatively associated with Malaise score. Much the strongest relationships are between Personal Control and Life Satisfaction (positive) and Personal Control and Malaise (negative). There is a significant correlation between Income and Life Satisfaction, and a negative correlation between Income and Malaise. However, these are relatively weak, and could be by-products of the correlations of Income with SES, SES with Personal Control, and Personal Control with the measures of SWB.

To investigate this possibility, the data were subjected to path analysis. This is a multiple regression technique that allows for the evaluation of the strength of alternative causal pathways between two variables. In this instance, the input variable is SES, and the outcome either Life Satisfaction or Malaise. SES may be having its effects on the outcome variables via increasing income, or via increasing the sense of personal control. There is also a third pathway to be considered, which is that SES increases income, which in turn increases personal control, which in turn increases SWB.

The path diagram for SES and Life Satisfaction is shown in figure 2. The covariation of SES and SWB is mediated by Income and Personal Control (the direct pathway not passing through these variables is of negligible strength,  $\beta < 0.01$ ). Increasing SES strongly increases Income ( $\beta = 0.29$ ). However, the effect of Income on SWB is negligible ( $\beta < 0.01$ ). There is a moderate effect of SES on the Personal Control ( $\beta = 0.15$ ), and from thence a very strong effect of Personal Control on Life Satisfaction ( $\beta = 0.44$ ). The indirect pathway via both Income and Personal Control is relatively weak. Thus, the main effect of SES on SWB appears to be via increasing Personal Control, and essentially unmediated by Income.

Figure 3 shows a similar path diagram for Malaise. Again, the relationship between SES and Malaise is entirely via Income and Personal Control. The relationship from Income to Malaise is very weak ( $\beta = -0.03$ ). Most of the covariation

is accounted for by the indirect pathway from SES to Personal Control ( $\beta = 0.15$ ), and the strong linkage of Personal Control to Malaise ( $\beta = -0.40$ ). The doubly indirect pathway, via both Income and Control, is significant, but relatively weak.

Thus it seems that the relationship between SES and SWB is almost entirely driven by the greater Personal Control experienced by higher SES groups. The higher incomes of these groups do not appear to be an important factor. To explore this possibility further, a comparison was made between individuals in the bottom quartile of Income with high scores on Personal Control (scores of 3; 1405 individuals), and those few individuals in the top quartile of Income with low Personal Control scores (scores of 0 or 1; 69 individuals). As table 3 shows, the low income-high personal control group has significantly higher Life Satisfaction and lower Malaise scores than the high income-low personal control group.

## DISCUSSION

There are clear socio-economic gradients in the distribution of subjective well-being in this large cross-sectional sample of the British population. Increasing SES is associated with increasing satisfaction with life, and decreasing levels of self-reported psychosomatic symptoms. As SES increases, income increases, but so does the feeling of being able to control what happens in life. The effects of personal control and of income can be disaggregated by path analysis, and it is clear that increasing income is of very limited importance in increasing SWB. Indeed, those in the lowest quartile of income who have a sense of personal control are significantly more satisfied with life and have reduced feelings of malaise than those who are in the highest quartile of income but lack the feeling of control. Thus, increasing the sense of personal control strongly and directly increases life satisfaction and decreases malaise.

The increase in personal control associated with high SES is not caused by increased income. Instead, it seems likely that intrinsic attributes of the organisation of higher SES occupations bring about a greater sense of control. Such attributes include the ability to select the time, place and direction of effort, the opportunity to work autonomously rather than under direction, and the experience of supervising others rather than being supervised.

The results have several implications. First, at the level of economic development that the British economy has reached, increments in income are not robustly associated with increments in subjective well-being. This accords with the finding that as incomes have risen sharply in real terms over the last few decades, average well-being has remained constant (Myers and Diener 1996). The importance of income might be very different if a similar analysis was carried out in a population sufficiently poor that people lacked basic material necessities such as food and shelter. Given that these necessities are fulfilled for the vast majority of British people, the findings accord with studies that have shown that increases in material wealth are subject to quick adaptation and a co-ordinated increase in aspiration levels, resulting in no increase in satisfaction overall (Brickman et al., 1978; Easterlin, 2003).

Second, the results reinforce the view that the feeling of personal control over life is a fundamental determinant of subjective well-being, which in turn has positive impacts on objective health. This is consonant with a number of studies in diverse paradigms that have demonstrated the importance of the feeling of efficacy or personal control for coping, reducing stress, improving health outcomes, and increasing satisfaction (Bandura, 1977; Bosma et al., 1999; Karasek & Theorell, 1990; Warr, 1990).

Third, and most importantly, the results shed light on the continuing presence of socio-economic gradients in well-being in developed economies. Objective health outcomes are still robustly associated with socio-economic status even in the richest nations (Marmot, 2003). Since the absolute material standard of living of even the poorest groups in such nations far exceeds that of the richest of a few generations ago, it is likely that psychosocial factors are significant in maintaining these gradients (Siegrist & Marmot, 2004). Low control engages stress mechanisms, which are adaptive as emergency responses, but become physiologically damaging when engaged chronically, as they become in situations where a lack of control is a structural feature (Kristenson, Eriksen, Sluiter, Starke, & Ursin, 2004; Sapolsky, 1999). The operation of such mechanisms is also associated with subjective distress. The process of economic growth may increase the real incomes of the whole workforce, but the psychological experience of work is still much more favourable in higher status professions than in lower ones, in that people can work autonomously and under their own direction. The present results suggest that unless the interpersonal

basis, and psychosocial experience, of work in different professions is changed, socioeconomic gradients in well-being will not diminish.

Table 1. Items used in the Personal Control measure (with scores in brackets)

1.	I never really seem to get what I want out of life	(0)
	I usually get what I want	(1)
2.	I usually have a free choice and control in life	(1)
	Whatever I do has no real effect	(0)
3.	I usually run my life more or less as I want to	(1)
	I usually find problems too much	(0)

Table 2. Correlations between the measures of socio-economic status, subjective well-being, and personal control

	Income	Pers. Con.	SWB	Malaise Score
SES	0.09*	0.16*	0.07*	-0.10*
Income		0.03*	0.03*	-0.02
Personal Control			0.48*	-0.46*
SWB				-0.38*

\*  $p < 0.001$

Table 3. Comparison of Life Satisfaction and Malaise scores for individuals in the lowest income quartile with a high degree of personal control, and those in the highest quartile of income with a low degree of personal control.

	Low Income- High Control	High Income- Low Control	Difference
Life Satisfaction	7.85	5.82	$t_{(1472)}=8.38, p<0.001$
Malaise	3.06	6.07	$t_{(1472)}=10.26, p<0.001$

Figure 1. Average Life Satisfaction (solid line, left hand axis) and Malaise Score (dashed line, right hand axis) by Socio-Economic Status (1=lowest/unskilled, 5=highest/professional).

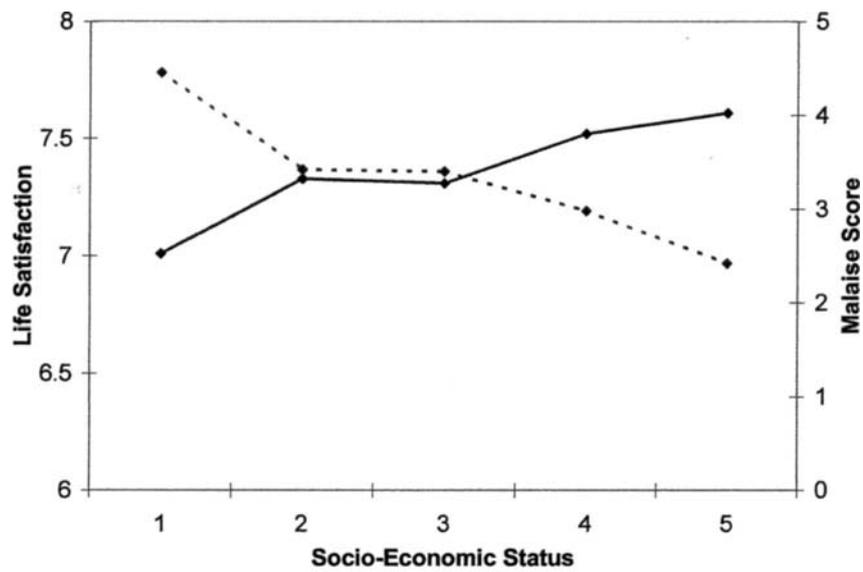


Figure 2. Path diagram of relationships amongst socio-economic status (SES), Income, Personal Control (CONTROL), and rated Life Satisfaction (LIFESAT). Dotted pathways are statistically nonsignificant ( $p > 0.05$ ).

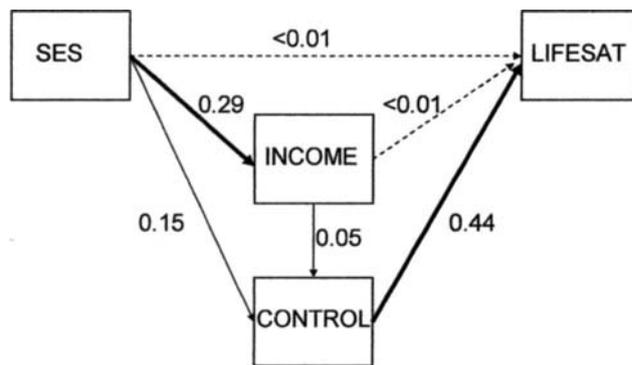
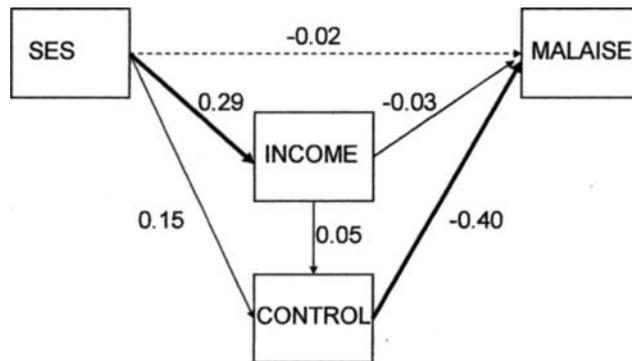


Figure 3. Path diagram of relationships amongst socio-economic status (SES), Income, Personal Control (CONTROL), and rated Malaise. Dotted pathways are statistically nonsignificant ( $p>0.05$ ).



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