



Health Development Agency

Work, non-work,
job satisfaction and
psychological health

Evidence review

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Foreword

The Health Development Agency was established in April 2000. Since then it has been engaged, among other things, in building the evidence base in public health with a special focus on reducing inequalities in health. It has developed a number of ways of taking a systematic approach to compiling the evidence, identifying gaps and making the evidence base accessible. The evidence reviews and evidence briefings which the Health Development Agency publish are two of the principal ways in which the evidence base is disseminated. (Full details of the process of developing the evidence base and the associated methodological activities can be found in Swann *et al.*, 2002; Kelly *et al.*, 2002, 2003, 2004; Killoran and Kelly, 2004; Graham and Kelly, 2004.)

Evidence reviews, of which this is one, are traditional reviews, overviews or syntheses of multiple evidence sources drawn from different research traditions. These take a variety of forms and formats. In some cases they consist of analyses of primary studies or data, drawn from the published or unpublished literature and sources. In other cases they consist of assessments of theoretical literature and the concepts and ideas which relate to the evidence base in public health. They provide a general evidence resource on a range of public health topics.

Evidence briefings are syntheses of the world English language systematic review literature on particular topics. The evidence briefings consist of tertiary-level research, ie reviews and syntheses of existing systematic reviews and meta-analyses.

The Health Development Agency's evidence products are available on the website – www.hda.nhs.uk/evidence – and the electronic versions are updated on a regular basis as new evidence becomes available.

The construction of the HDA Evidence Base has involved collaboration with a number of partners who have interests and expertise in practical and methodological matters concerning the drawing together of evidence and its dissemination. In particular the HDA would like to acknowledge the following: the NHS Centre for Reviews and Dissemination at the University of York; the EPPI-Centre at the Institute of Education at the University of London; Health Evidence Bulletins Wales; the ESRC UK Centre for Evidence Based Policy and Practice at Queen Mary College, University of London and its nodes at the City University London and the MRC Public Health Sciences Unit at the University of Glasgow; members of the Cochrane and Campbell collaborations; the United Kingdom and Ireland Public Health Evidence Group and the members of the Public Health Evidence Steering Group. This latter organisation acts as the overall guide for the evidence-building project of the HDA. The cooperation of colleagues in these institutions and organisations has been of significant help in the general work in preparing the framework for how we assess the evidence. The HDA is, however, responsible for the presentation and organisation of the material in the briefings.

Every effort has been made to be as accurate and up to date as possible in the preparation of this review. However, we would be very pleased to hear from readers who would like to comment on the content or on any matters relating to the accuracy of the review. We will make every effort to correct any matters of fact in subsequent editions. Comments can be made by using our website www.hda.nhs.uk/evidence

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References

- Graham, H. and Kelly, M. P. (2004). *Health inequalities: concepts, frameworks and policy*. London: Health Development Agency.
- Kelly, M. P., Swann, C., Morgan, A., Killoran, A., Naidoo, B. and Barnett-Paige, E. (2002). *Methodological problems in constructing the evidence base in public health*. London: Health Development Agency. www.hda.nhs.uk/evidence
- Kelly, M. P., Chambers, J., Huntley, J. and Millward, L. (2003). *Method 1 for the production of Effective Action Briefings and related materials*. London: Health Development Agency. www.hda.nhs.uk/evidence/EIP_Protocol_july03.pdf
- Killoran, A. and Kelly, M. P. (2004). Towards an evidence-based approach to tackling health inequalities: the English experience. *Health Education Journal* 63: 7-14.
- Kelly, M. P., Speller, V. and Meyrick, J. (2004). *Getting evidence into practice in public health*. London: Health Development Agency. www.hda.nhs.uk/documents/getting_eip_pubhealth.pdf
- Swann, C., Falce, C., Morgan, A. and Kelly, M. (2002). *HDA Evidence Base: process and quality standards manual for Evidence Briefings*. London: Health Development Agency. www.hda.nhs.uk/evidence

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Summary

Introduction

This evidence review is an attempt to open up a new area of potential interest to both public health and the field of work and employment. There is currently little evidence looking at the relationship between job satisfaction, aspiration, mental health and worklessness, and this review is designed as a preliminary scoping of some of the primary data in the field which is available from cohort studies currently running in the UK.

There is now widespread recognition that the relationship between work and health and disease goes well beyond specific occupational illnesses and accidents to broader matters. The broader relationship may be understood in terms of three mechanisms.

- Work which provides fulfilment and allows individuals control over their working lives confers considerable health benefit.
- Types of job which are lacking in self-direction and control seem to confer far fewer health benefits, and people with such jobs seem to experience consistently higher rates of mortality and morbidity.
- Absence of work in the form of unemployment produces considerable negative health effects.

However, the precise ways in which these mechanisms work is subject to considerable debate.

Findings

Is job satisfaction decreasing?

Between 1991 and 2002, job satisfaction scores declined in the British Household Panel Study. The decline was slightly greater in the older age group. The greatest

overall decrease was seen among those in intermediate occupations (clerical, sales and other 'white-collar' jobs). The smallest overall decrease was seen among those doing semi-routine and routine jobs.

Does adult occupational attainment meet occupational aspirations?

A large proportion of those who aspired to professional and managerial work as teenagers were found in semi-routine and routine occupations in adulthood. Very few aspired to lower supervisory and technical occupations (many of these are the old 'skilled manual' jobs in heavy industries). However, the comparisons of aspiration and destination used in this review need to be regarded with caution, since there are many missing data.

Relationship between psychological health and economic activity during working life

When looking at the causes of economic inactivity, the most common single reason is long-term sickness and disability. Just under half of all those classified as long-term sick or disabled are diagnosed with psychological ill health. Do individuals drop out of the labour force as a result of worsening psychological health?

Both economic activity and mental health are very differently distributed according to gender. In both men and women, those with poor psychological health at age 23 were a great deal less likely to be employed or actively seeking work 10 years later. This tendency was considerably stronger in men than women. There is also noticeable continuity in psychological health: both men and women with poorer health at age 23 were far more likely to score highly on the Malaise Inventory at 33.

Why are numbers of people on disability benefit for psychological ill health rising?

Regulatory changes making it 'easier' to gain the status of long-term disability as a result of psychological ill health do not seem to be increasing economic inactivity among young adults. Nor is there strong evidence for an increase in the proportion of school leavers entering the labour market already in a poor state of health. Rather, the prevalence of psychological health problems has increased among young adults already in the labour force.

Conclusion

Job satisfaction is one of several factors whose influence on health has been thought to be highly significant. It is a direct manifestation of the type of work that people do, and is linked to participation in the labour force. In terms of the broader social determinants in health, job satisfaction has been hypothesised to play a pivotal role. This review demonstrates that important understanding of the dynamics of the factors involved may be gleaned from cohort data, and that the causal pathway may be mapped with some precision. Further research in this area is likely to prove fruitful, and ideas for further research are proposed.

Introduction

Methodological issues

This evidence review is an attempt to open up a new area of potential interest to both public health and the field of work and employment. There is currently little evidence looking at the relationship between job satisfaction, aspiration, mental health and worklessness, and this review is designed as a preliminary scoping of some of the primary data available from cohort studies currently running in the UK.

Since the review intends to establish whether this field merits further exploration, there is little complex statistical analysis of the data. The analysis tends to take an overview of the data and therefore its conclusions are to some extent speculative. In addition, some of the samples used are rather small and do not pretend to statistical significance. The data as they stand are not necessarily representative, but hopefully will serve to fuel further interest in this subject.

Background

This paper reviews data derived from the British Household Panel Study, the National Child Development Study, and the 1970 British Birth Cohort in order to consider four questions:

- Are trends in job satisfaction changing?
- Are teenage job aspirations indicative of adult occupational attainment?
- What is the relationship between psychological health and economic activity during working life?
- Is there a link between the numbers of people on disability benefit and psychological ill health?

These questions arise from the Health Development Agency's programme of building the evidence base in public health, a task in which it has been engaged since 2000 (Department of Health, 1999; 2001; Kelly and Swann, 2004; Killoran and Kelly, 2004). The HDA had a particular remit to consider the relationship between health and its determinants in the widest sense in order to identify interventions which would be effective in reducing health inequalities. In the course of reviewing the world systematic review scientific literature it has become clear that while evidence describing the problems of inequalities in health is extensive, the amount of evidence dealing with particular interventions which might help to reduce health inequalities is very limited (Millward *et al.*, 2003).

The lack of evidence is in turn compounded by three factors. First, a simple model of health determinants in which single causes of health are described is unhelpful. It is necessary to distinguish between different dimensions of inequality or social difference and their differential effects on health (Graham and Kelly, 2004). Social class, for example, while often used as a proxy for all sorts of social differences, is a relatively blunt instrument for teasing out the finer nuances of social variegation and the way these social differences determine health. The different dimensions of social difference have effects in their own right and interact with the other dimensions of social difference. So, for example, gender, ethnicity and housing all impact on health, but they also all interact with each other to determine overall health. However, the way these interactions work is not well understood. Work and employment status is an important element of social difference, linked to obvious things like disposable income and social status. This review considers this dimension

of social difference, and draws out the impacts on one aspect of health – psychological wellbeing.

Second, while the overall picture is one in which the wider determinants undoubtedly exert considerable force on health outcomes when judged by the aggregate data, the way that the individual causal pathways operate is not well understood. This review highlights one of those pathways. The importance of identifying these pathways lies in the possibility for intervention which knowledge of the pathways potentially provides. It is instructive to examine work and non-work and data about psychological morbidity, because this demonstrates some of the complexities of the pathways – as well as some of the potential solutions.

Third, social structures are dynamic and the effects of social structures on individuals and on groups are mediated by the way social structures change. By looking at cohort data and some time series evidence, it is possible to get a sense of the way that the causal pathways are themselves determined and affected by general patterns of social change and development.

Work and health

The debate about the relationship between work and health is very old. From the earliest descriptions of worker exploitation, dehumanisation and alienation (Marx, 1848) to studies of the degradation of job satisfaction (Blauner, 1964) a causal chain has been hypothesised. This suggested that work which was repetitive and intrinsically lacking in meaning was linked to psychological distress and lack of job satisfaction, and so was implicitly or explicitly damaging to health. This socio-psychological

approach developed in parallel to occupational medicine which focused originally on the physical, as opposed to the psychological, damage which work could do in the form of occupational and industrial diseases (Koh and Jeyaratnam, 2002).

Empirically it is clear that hazards in the workplace can be physical, chemical, biological, ergonomic, or psychosocial (Koh and Jeyaratnam, 2002). This is demonstrated by the Labour Force Survey (Table 1), showing that the leading work-related medical problems are musculo-skeletal disorders and mental ill health. In the case of the latter, the great majority of diagnoses are for stress, anxiety and depression.

According to the Health and Safety Executive, in 2001–02 (the latest year for which figures are publicly available) there were 130,572 injuries causing incapacity for normal work for more than three days. This is a decline of about 4% from 1999. The largest number of injuries was accounted for by manufacturing industry (35,034), followed by transport and communications (22,531), public administration and defence (14,296), health and social work (13,061) and construction (9,695). The largest number of fatalities was in construction (105 in 2001–02). The differences in the injury and fatality numbers reflect both the size of the sectors and the intrinsic risk of the different workplaces (ONS Labour Force Survey, 2004, Table 9.9).

Some survey evidence suggests that the public thinks work-related ill health is a major problem. For example, in 1991 the Commission of the European Communities conducted a survey of 12,500 people representing the national working populations of the then 12 member states. They found that:

	2000	2001	2002
Musculo-skeletal disorders	7,816	7,781	7,970
Mental ill health	6,555	7,575	6,946
Respiratory disease	3,711	3,353	3,118
Skin disease	4,322	3,647	3,600
Audiological disease	648	395	222
Infections	561	294	2,233

(Source: ONS Labour Force Survey, 2004, Table 9.7.)

- 42% of all workers thought their health could be affected by their work
- 40% felt they were at risk of an accident at work
- 25% were concerned for both their health and safety at work
- 27% used dangerous or potentially dangerous equipment or machinery for one quarter of their working lives
- 84% thought industrial accidents and diseases were commonplace
- 14% had had a recognised industrial accident or occupational disease.

(Koh and Jeyaratnam, 2002)

A review by the Health Education Authority (1997) estimated that:

- About 18% of deaths each year are work related
- Of adults who have worked, 6% (2.2m people) suffer from some form of ill health, which they believe was caused or aggravated by work, mostly musculo-skeletal disorders, stress and depression
- About 12m working days are lost as a result of work-related illness
- There are 1.6m workplace injuries per year causing 23m lost working days.

The Health and Safety Executive estimated that the costs of injury accidents and ill health amount to between 5 and 10% of Britain's gross trading profit (Davies and Teasdale, 1994).

There is now widespread recognition that the relationship between work and health and disease goes well beyond specific occupational illnesses and accidents (Marmot *et al.*, 1999) to broader matters. The broader relationship between work and health may be understood in terms of three mechanisms. First, work which provides for degrees of fulfilment or job satisfaction and in particular allows individuals discretion and control over their working lives seems to confer considerable health benefit, when measured in terms of overall mortality. Second, types of job which do not allow self-direction and control seem to confer far fewer health benefits, and people with such jobs seem to experience consistently higher rates of mortality and morbidity. Third, absence of work in the form of unemployment produces considerable negative health effects. However, the precise ways in which these mechanisms work is subject to considerable debate.

The most comprehensive recent review of international data relating to the first two mechanisms, along with a

detailed account of the theoretical and methodological problems, is to be found in the final report of the European Science Foundation (ESF) (2003). Among other things they report that high demand/low control (job strain) was associated with a 38% increase of CHD risk (Kuper and Marmot, 2003). Similarly, effort-reward imbalance at work was associated with a 36% increase of CHD risk. If combined with low social support at work, the respective odds ratio was 1.51 in the job strain model and 1.77 in the effort-reward imbalance model (Kuper *et al.*, 2002). Interestingly, in a prospective study conducted in Finland, job strain and effort-reward imbalance were independently associated with a 2.20 to 2.36-fold elevated risk of cardiovascular mortality (Kivimäki *et al.*, 2002). The ESF report also notes that stressful psychosocial work environments are associated with a range of indicators of reduced health and physical disease. A social gradient of low control at work has been documented in a large number of studies (eg Bosma *et al.*, 1998; Griffin *et al.*, 2002; Godin and Kittel, 2004). The report goes on to observe that the findings on adverse effects of stressful psychosocial work environments on health need to be interpreted in light of the fact that midlife is the period of life, after the first year of life, during which social inequalities in health manifest themselves most strongly.

The other important element in this literature relates to the absence of work. There is significant literature demonstrating the damaging effects of the absence of work – the economic and health impacts are considerable (Bartley *et al.*, 1999; Westergaard *et al.*, 1989; Martikainen and Valkonen, 1996; Montgomery *et al.*, 1996; 1998). Unemployment impacts on psychological wellbeing, social participation and physical health (Bartley, 1994). However, the impact varies with career stage. Late in a career, there are increased mental and physical health problems associated with unemployment. There are also considerable negative health outcomes of unemployment in the early years of potential employment, which can have a big impact over the remainder of the life course (Wadsworth *et al.*, 1999).

The notion, therefore, of work being a simple determinant of health is wide of the mark. The relationship between work and health is a broad canvas. By focusing on a limited range of outcomes, it is nevertheless possible to explore a number of factors which are potentially useful in bringing about change. Using data derived from cohort studies, it is possible to articulate some of the critical factors, and to consider some of the issues involved. Job

satisfaction is a particularly interesting factor on which to focus. In conventional industrial sociology and psychology it has been conceptualised as an important variable at the heart of the experience of work. It is clearly linked to issues of control and self-efficacy and direction in the workplace, and is also clearly linked conceptually and empirically to questions of psychological morbidity. Given the interest in health inequalities research in the role of self-efficacy and self-direction and the presence and absence of control, the data offer important insights into the health determinant causal chain.

Findings

Is job satisfaction decreasing?

Low levels of unemployment (according to both International Labour Organization figures and the numbers of people claiming benefit) currently co-exist with very high levels of economic inactivity. One possible reason for low levels of economic activity is that work provides less satisfaction than in the past. The British Household Panel Study (BHPS), providing 12 years of data from 1991 to 2002, sheds some light on this. Job satisfaction was measured with one question: 'How satisfied are you with your job?' Replies were given on a scale ranging from 1 to 7, whereby a high score indicates high job satisfaction. As Table 2 shows, job satisfaction scores declined between 1991 and 2002, with the decline slightly greater in the older age group (46 years and over in 1991).

Figure 1 shows that the decline in mean scores was largely due to a sharp decrease in those scoring 7 ('very satisfied'), rather than any increase in the proportions reporting low levels of job satisfaction. In fact, the number scoring '1' also notably decreased.

Table 2: Mean job satisfaction 1991–2002 by age group, British Household Panel Study (BHPS)

	16–30 years	31–45 years	46+ years
1991	5.42	5.44	5.78
1992	5.41	5.45	5.75
1993	5.35	5.38	5.67
1994	5.31	5.38	5.57
1995	5.33	5.38	5.58
1996	5.33	5.42	5.60
1997	5.42	5.45	5.55
1998	5.31	5.33	5.47
1999	5.24	5.30	5.37
2000	5.30	5.29	5.38
2001	5.33	5.41	5.43
2002	5.33	5.30	5.44

Men and women aged 16–60.

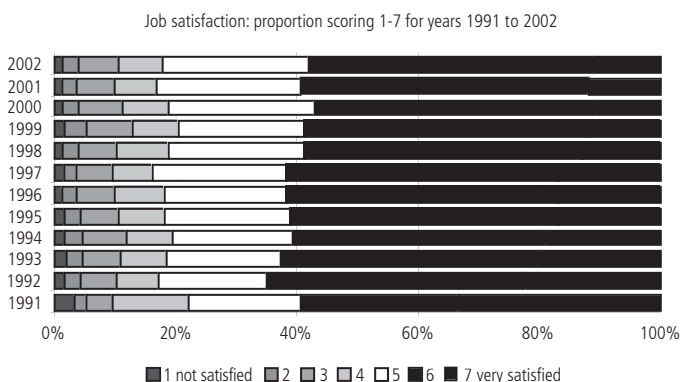


Figure 1: Proportions responding 'not satisfied' to 'very satisfied' with their job in the years 1991–2002

Table 3: Mean job satisfaction by National Statistics socioeconomic classification (NS-SEC), BHPS

	Managerial and professional occupations	Intermediate occupations	Small employers or own account	Lower supervisory and technical	Semi-routine and routine occupations
1991	5.54	5.62	5.69	5.41	5.45
1992	5.55	5.59	5.55	5.42	5.53
1993	5.47	5.41	5.69	5.28	5.47
1994	5.42	5.35	5.63	5.26	5.44
1995	5.43	5.38	5.70	5.32	5.39
1996	5.43	5.48	5.59	5.36	5.45
1997	5.45	5.49	5.64	5.44	5.46
1998	5.35	5.39	5.50	5.31	5.36
1999	5.32	5.34	5.38	5.13	5.32
2000	5.37	5.26	5.39	5.26	5.30
2001	5.40	5.39	5.56	5.33	5.37
2002	5.38	5.28	5.48	5.27	5.34
Overall difference	0.16	0.34	0.21	0.14	0.11
Men and women aged 16–60.					

To interpret these figures correctly, more needs to be known about the relationship of job satisfaction to the motivation for work. Is there a threshold below which individuals begin to look for alternatives to employment?

Table 3 shows trends in mean job satisfaction according to social class, once again using BHPS data. The greatest overall decrease was seen among those in intermediate occupations (0.34). These are clerical, sales and other ‘white-collar’ jobs that form an increasing proportion of the modern labour force. These occupations generally benefit from incremental salary scales, some potential for career progression, and have some degree of security. However, these jobs are also often relatively repetitive and tightly supervised. The smallest overall decrease (0.11) was in fact among those doing semi-routine and routine jobs, with the lowest degree of work autonomy and discretion and often with least job security.

It should be noted that the overall decline figures may mask important nuances in the year-to-year changes which may relate to changes in the politico-economic climate. This could be a subject for further research.

Does adult occupational attainment meet occupational aspirations expressed at age 16?

A second possible reason for high levels of job dissatisfaction is incongruence between aspirations and the realities of work. During the 1980s and 1990s, the proportion of people attending some form of tertiary education, including university, rose rapidly. As a result, there are now many more graduates in relatively routine forms of employment than would have been the case in the early 1980s, and this trend continues.

Both the National Child Development Study (NCDS) and 1970 British Birth Cohort (BCS70) have data on job aspirations at age 16 (in 1974 and 1986 respectively). In order to compare aspirations with the job attained by NCDS cohort members at age 33 and by BCS70 cohort members’ jobs at age 30, it was first necessary to convert the lists of occupations to a common form. This was done by using a measure of social class, the Erikson–Goldthorpe schema, which is present in both data sets and classifies occupations according to employment relations and

Job aspirations in 1974	Social class in 1991					Total
	Managerial & professional occupations	Intermediate occupations	Small employers or own account	Lower supervisory & technical	Semi-routine and routine occupations	
Prof/mgr	299 (14%)	1172 (57%)	40 (2%)	316 (15%)	246 (12%)	2073 (34%)
Intermediate	73 (5%)	888 (59%)	47 (3%)	237 (16%)	258 (17%)	1503 (25%)
Sup/tech	139 (7%)	489 (25%)	136 (7%)	795 (41%)	391 (20%)	1950 (32%)
Semi/routine	61 (10%)	164 (27%)	27 (4%)	197 (32%)	168 (27%)	617 (10%)
Total	572 (9%)	2713 (44%)	250 (4%)	1545 (25%)	1063 (17%)	4663

conditions. Job aspirations were coded in the original survey in terms of a one-off list of types of occupation, rather than any theoretically-based schema. However, these could also be coded using similar criteria to those used in Erikson–Goldthorpe, making them comparable.

The BHPS conducted a ‘youth survey’ in 1994 which collected information on job aspirations among 14–15 year olds. The study then looked at the occupational attainment of those in work in 2002 (when they would be 22–23). The BHPS codes occupations according to the National Statistics socioeconomic classification (NS-SEC) social class schema, which is now used for all British official statistics. The criteria are, like the Erikson–Goldthorpe schema, based on employment relations and conditions.

Table 4 compares job aspirations at age 16 in 1974 with attained occupational social class at age 33 in 1991 in the NCDS. Aspirations to professional and managerial work were the least likely to be fulfilled – only 14% of

those with this type of employment in mind were actually doing it by the age of 33. Over half of those who aspired to intermediate occupations fulfilled or exceeded this aspiration, as did 72% of those who wanted to aim for supervisory or technical work. It needs to be pointed out that although 33 might seem rather a late age for this to be the case, some of these cohort members might still have been on a ‘career ladder’ towards eventually attaining management positions. It is, however, notable that the most frequent destination social class, the intermediate class, is the one shown by the BHPS data to have experienced highest declines in job satisfaction during the 1990s (0.34, see Table 3). This perhaps indicates that job aspirations at 16 did not match the reality of ‘working life’ at age 33. This could be a subject for further research.

Table 5 shows that in the cohort born in 1970, it was far more common both to aspire to a professional or managerial occupation, and to achieve it. Fully 27% of those who stated this as their desired destination had

Job aspirations in 1986	Social class in 2000					Total
	Managerial & professional occupations	Intermediate occupations	Small employers or own account	Lower supervisory & technical	Semi-routine and routine occupations	
Prof/mgr	453 (27%)	912 (54%)	50 (3%)	161 (10%)	104 (6%)	1,680 (51%)
Intermediate	114 (13%)	538 (63%)	34 (4%)	106 (12%)	67 (8%)	859 (26%)
Sup/tech	65 (14%)	132 (28%)	42 (9%)	166 (35%)	65 (14%)	470 (14%)
Semi/routine	42 (14%)	103 (35%)	20 (7%)	71 (24%)	57 (20%)	293 (9%)
Total	674 (20%)	1,685 (51%)	146 (4%)	504 (15%)	293 (9%)	3,302

achieved it by age 30 in 2000. Cohort members in each group defined in terms of aspiration were around twice as likely to be in professional or managerial jobs by age 30, except for young people aiming for semi-routine and routine occupations. This was at the expense of the lower supervisory and technical group, whose size decreased, though due to changes in aspirations the proportion of those wishing to be in this kind of occupation who attained it by age 30 was only a little lower than in the 1958 cohort. Those with less ambitious aspirations of any kind were around twice as likely to be found in professions or in managerial work in the 1970 cohort as in the 1958 cohort.

In interpreting these findings, one has to consider that in comparison to the mid 1970s, when the earlier born cohort were entering the labour market, the later born cohort experienced changed labour market opportunities in the mid to late 1980s when they were entering the labour market. While the typical manual skilled or semi/unskilled jobs were disappearing, jobs in the service industries were on the increase, as were jobs requiring some form of further education and qualifications. Furthermore, while young people born in 1958 made the transition into adulthood at the end of a relatively prosperous era, young people born in 1970 entered the labour market at the height of an economic depression.

Table 6 shows what happened to a small cohort of young people interviewed at ages 15 and 16 in 1994 and re-interviewed eight years later in 2002. Although this is a small group, it allows us to compare those entering the labour market in the mid 1990s with those who did so in the mid 1970s (NCDS) and mid-1980s (BCS70).

One of the most striking differences is in the large proportion of those who aspired to professional and managerial work who were found in semi-routine and routine occupations, that is, the jobs with the lowest levels of career opportunity. The likelihood of ending up in this occupational group was particularly high among those who aspired to intermediate occupations. It must be remembered that these young people were only aged 23–24 and so would have been at a very early stage in their working lives, or might have supported their participation in further education by doing semi-routine jobs. In addition, very few chose the lower supervisory and technical occupations (many of these are the old ‘skilled manual’ jobs in heavy industries).

These comparisons of aspiration and destination need to be regarded with some caution. There are many missing data. Age 16 is a difficult moment for surveys to pin down young people for interviews. However, this does give some preliminary ideas on a subject that is relevant to policy makers and is, perhaps, under-studied (see Further Research).

Relationship between psychological health and economic activity during working life

When looking at the causes of economic inactivity, the most common single reason is long-term sickness and disability. Just under half of all those classified as long-term sick or disabled are diagnosed with psychological ill health. Do individuals drop out of the labour force as a result of worsening psychological health? In the NCDS, this was addressed by relating individuals’ scores on a

Table 6: Occupational aspirations at age 15–16 by occupational attainment at age 22–23, BHPS 1994–2002

Job aspirations in 1994	Social class in 2002					Total
	Managerial & professional occupations	Intermediate occupations	Small employers or own account	Lower supervisory and technical	Semi-routine and routine occupations	
Prof/mgr	22 (29%)	26 (34%)	1 (1%)	6 (8%)	21 (28%)	76 (57%)
Intermediate	4 (19%)	2 (10%)		4 (19%)	11 (52%)	21 (16%)
Sup/tech				2 (40%)	3 (60%)	5 (4%)
Semi/routine	5 (16%)	9 (28%)	1 (3%)	1 (3%)	16 (50%)	32 (24%)
Total	31 (23%)	37 (28%)	2 (1%)	13 (10%)	51 (38%)	134 (100%)

Table 7: Employment status and psychological health at age 33 by psychological health at age 23, NCDS						
	1991 (age 33)					
1981 (age 23)	Employment			Psychological health		
Psychological health	Active	Inactive	P	Good	Poor	P
Men						
Good	4,128 (93)	328 (7%)	<0.0005	4,305 (97%)	123 (3%)	<0.0005
Poor	129 (77%)	38 (23%)		98 (59%)	67 (41%)	
Women						
Good	3,115 (71%)	1,287 (29%)	<0.0005	4,136 (95%)	230 (5%)	<0.0005
Poor	295 (60%)	193 (40%)		308 (64%)	170 (36%)	

measure of psychological health, the Malaise Inventory, at age 23 (in 1981) to their employment status at age 33 (in 1991) (Table 7), and relating scores on the Malaise Inventory at 33 to employment status at age 40 (in 1998) (Table 8).

The BHPS measures psychological health in a different way, using the General Health Questionnaire (GHQ), a widely used survey measure of psychological health. Scores on this measure were related to employment status every year between 1991–2003 (Table 9).

Table 7 shows the relationship between psychological health and subsequent employment status in men and women from the age of 23 in 1981 to 33 in 1991. It also shows the degree of persistence of poor psychological health over a 10-year period. Men and women are shown

separately because both economic activity and mental health are very differently distributed according to gender. In both men and women, those with poor psychological health (measured according to the Malaise Inventory) at age 23 were a great deal less likely to be employed or actively seeking work 10 years later. This tendency was considerably stronger in men than women.

The right-hand panel of Table 7 shows that there was also noticeable continuity in psychological health – both men and women with poorer health at age 23 were far more likely to score highly on the Malaise Inventory at age 33. The relationship was similar in men and women.

Table 8 repeats the same exercise but following NCDS cohort members from age 33 to age 42. Whereas exactly the same proportion (7%) of men with good

Table 8: Employment status and psychological health at age 42 by psychological health at age 33, NCDS						
	2000 (age 42)					
1991 (age 33)	Employment			Psychological health		
Psychological health	Active	Inactive	P	Good	Poor	P
Men						
Good	4,168 (93%)	320 (7%)	<0.0005	4,100 (92%)	343 (8%)	<0.0005
Poor	131 (74%)	47 (26%)		70 (41%)	102 (59%)	
Women						
Good	3,716 (81%)	856 (19%)	<0.0005	4,057 (89%)	495 (11%)	<0.0005
Poor	290 (69%)	127 (31%)		168 (41%)	245 (59%)	

Table 9: Employment status and psychological health at age 30 by psychological health at age 26, BCS70

2000						
1996	Employment			Psychological health		
Psychological health	Active	Inactive	<i>P</i>	Good	Poor	<i>P</i>
Men						
Good	2,882 (93%)	210 (7%)	<0.0005	2,900 (94%)	168 (6%)	<0.005
Poor	238 (80%)	60 (20%)		154 (52%)	142 (48%)	
Women						
Good	2,729 (77%)	805 (23%)	<0.0005	3,246 (92%)	267 (8%)	<0.005
Poor	477 (69%)	210 (31%)		375 (55%)	307 (45%)	

psychological health at 23 and 33 were inactive at 33 (see Table 7) and 42, the proportion with poor previous health who were inactive nine years later was slightly higher (26% compared to 23%). In women, however, a higher proportion were economically active at age 42 than 33 regardless of prior psychological health status, perhaps due in part to a reduction in the burden of childcare. Despite this, psychological status at age 33 was still a strong predictor of economic inactivity 10 years later. The right-hand panel shows there has been some decrease in the ability to recover from psychological distress as the cohort grows older. An increasing percentage of men and women who showed signs of psychological distress at age 33 were also depressed at age 42, when compared to rates in continuity of depression between ages 23 and 33.

Table 9, which shows data from the 1970 cohort, can be compared to Table 7, but with caution, as they make a comparison between two surveys held at widely different intervals. The NCDS surveyed respondents at ages 23 and 33, while Table 9 shows the results of BCS70 surveys carried out at ages 26 and 30. Both show the relationship of psychological health to subsequent employment status as men and women move through their twenties into their thirties. A similar proportion of men with poor prior health were economically inactive in the two cohorts. Table 7 shows that this was 23% of NCDS cohort members at age 33, and Table 9 shows that 20% of BCS70 cohort members with poor psychological health at age 26 were inactive at 30. There was a reduction in the proportion of economically inactive women, regardless of prior health. This does not give strong support to the idea that there may have been an increase in the propensity

of people in their twenties and early thirties with poorer psychological health to become economically inactive between the 1980s and 1990s. What seems to be more important is that in the NCDS at age 23, 3.6% of men, for example, had poor psychological health, compared to 8.8% at age 26 in the BCS70.

However, the large difference in the period of time covered does need to be considered. The NCDS (Table 7) shows the relationship of psychological health to later economic position over a 10-year gap (from age 23 to 33), while the BCS70 (Table 9) only shows what happened in the four years between ages 26 and 30.

As with the NCDS, the BCS70 also shows considerable continuity in psychological health (Table 9, right-hand panel). Both men and women showing signs of psychological distress at age 26 are also more likely to be distressed at age 30. The degree of continuity has actually increased, especially among women.

Why are numbers of people on disability benefit for psychological ill health rising?

The growth in the number of people unable to work due to psychological illness could have come about in one of two ways. There may have been an increase in the prevalence of psychiatric conditions in the population. Or there may have been an increase in the proportion of those with such conditions who are unable to find work. Of course, both trends may have contributed to some extent. In the previous section we have seen that the

Table 10: Prevalence of poor psychological health at age 15–16 in 1993–1995, BHPS

Year	Good	Poor	Total
1993	88 (79%)	24 (21%)	112 (100%)
1994	76 (78%)	22 (22%)	98 (100%)
1995	83 (80%)	21 (20%)	104 (100%)

prevalence of poor psychological health measured by the Malaise Inventory among people in their early twenties increased substantially between 1981 and 1990, while the propensity of those with higher scores to be economically inactive at around age 30 in fact fell. The upward trend in poor health at this age could, however, have already been influenced by different experiences of the labour market.

This section looks at the prevalence of poor psychological health at age 16 in the British Birth Cohort studies of 1958 and 1970. Psychological health at age 16 was measured by the Rutter Scale in both studies. Cohort members were 16 years of age in 1974 and 1986. This is followed by an examination of the relationship of psychological health status at age 16 to employment status in adulthood.

In addition, psychological health according to the GHQ was measured in participants in the BHPS youth survey in 1994 and related to their employment status in 2002, at age 22–23. This revealed trends in psychological health in adolescents just before labour market entry in the years 1974, 1986 and 1994, and any changes in the propensity of those with poorer psychological health to be economically inactive.

Table 10 shows no increase in the proportions of young people with poor psychological health over the (rather short) period of the youth surveys of the BHPS.

Table 11: Prevalence of poor psychological health at age 16 in 1974 (NCDS) and 1986 (BCS70)

Year	Good	Poor	Total
1974	10,018 (88%)	1,348 (12%)	11,366 (100%)
1986	6,736 (86%)	1,069 (14%)	7,805 (100%)

Table 12: Proportion of those with poor psychological health at age 15–16 in BHPS 1993–1995 who were economically inactive seven years later in 2000–2002

	Psych health	Economic position 2000–2002	
		Active	Inactive
1993	Good	84 (95%)	4 (5%)
	Poor	20 (83%)	4 (17%)
1994	Good	66 (87%)	10 (13%)
	Poor	18 (82%)	4 (18%)
1995	Good	70 (84%)	13 (15%)
	Poor	19 (90%)	2 (10%)

Nor does there seem to have been any great increase in poor psychological health in young people of school leaving age measured according to the Rutter Scale in the two British Birth Cohort Studies (Table 11).

If anything, evidence from the BHPS indicates some decrease in economic inactivity among those with poor psychological health in 1993–95 (though this is based on rather small numbers) (Table 12).

Tables 13 and 14 show that there was no difference in the proportion of those with poor psychological health at age 16 who were economically inactive at around age 30 between the two Birth Cohort Studies.

Table 13: Proportion of those with poor psychological health at age 16 in NCDS 1974 who were economically inactive in 1991 at age 33 and in 2000 at age 42

Psych health in 1974	Economic activity at age 33		Economic activity at age 42	
	Active	Inactive	Active	Inactive
Good	5,691 (81%)	1,334 (19%)	6,096 (87%)	921 (13%)
Poor	587 (72%)	227 (28%)	632 (76%)	198 (24%)

Table 14: Proportion of those with poor psychological health at age 16 in BCS70 1986 who were economically inactive in 2000 at age 30

Psych health	Economic activity at age 30	
	Active	Inactive
Good	4,401 (84%)	833 (16%)
Poor	578 (72%)	223 (28%)

Taken overall, the indications are, perhaps, surprising. Among young adults, regulatory changes making it 'easier' to gain the status of long-term disability as a result of psychological ill health do not seem to have resulted in increased economic inactivity. Nor is there strong evidence here for an increase in the proportion of school leavers entering the labour market already in a poor state of health. Rather, the prevalence of psychological health problems has increased among young adults already in the labour force. Job-seeking decisions may also be influenced by some decrease in job satisfaction, and by the longer time it seems to take for those with high job aspirations (a growing proportion) to attain anything near to their hopes.

Conclusion

Job satisfaction is one of several factors whose influence on health has been thought to be highly significant. It is a direct manifestation of the type of work which people do, and is linked to participation in the labour force. In terms of the broader social determinants in health, it has been hypothesised to play a pivotal role. This review demonstrates that important understanding of the dynamics of the factors involved may be gleaned from cohort data, and that the causal pathway may be mapped with some precision. Further research in this area is likely to prove fruitful.

Given the breadth of the inequalities in health question, focusing on job satisfaction alone will not provide a simple solution. It does, however, point to the importance of detailed data based on cohorts as the building blocks for understanding the mechanisms which determine health inequalities.

Further research

The preliminary data in this document raise four questions which could be the subject of future research.

- Is there a threshold of job satisfaction below which individuals begin to look for alternatives to employment?
- What is the relationship between year on year changes in job satisfaction and the wider political and economic context?
- Is there a correlation between career aspiration in youth and job satisfaction for adults who achieve their aspiration?
- Is there a correlation between career aspiration (in youth) and career destination (in adulthood)? (See, for example, Schoon and Parsons, 2002.) Note, however, it is important to differentiate between occupational and educational aspirations, with the latter being more significant in predicting adult outcomes.

References

- Bartley, M. (1994). Unemployment and ill health: understanding the relationship. *Journal of Epidemiology and Community Health* 48: 333-37.
- Bartley, M., Ferrie, J. and Montgomery, S. M. (1999). Living in a high unemployment economy: understanding the health consequences. In: Marmot, M. and Wilkinson, R. G. (eds). *Social Determinants of Health*. Oxford: Oxford University Press.
- Blauner, R. (1964). *Alienation and Freedom: The Factory Worker and His Industry*. Chicago: University of Chicago Press.
- Bosma, H. P. R., Siegrist, J. and Marmot, M. (1998). Two alternative job stress models and the risk of coronary heart disease. *American Journal of Public Health* 88: 68-74.
- Davies, N. V. and Teasdale, P. (1994). *The costs to the British economy of work accidents and related ill health*. Health and Safety Executive. London: HMSO.
- Department of Health (1999). *Saving Lives: Our Healthier Nation*. London: Stationery Office.
- Department of Health (2001). *A Research and Development Strategy for Public Health*. London: Department of Health.
- European Science Foundation (2003). *Scientific Programme on Social Variation in Health Expectancy in Europe: Final Programme Report*. Strasbourg.
- Godin, I. and Kittel, F. (2004). Differential economic stability and psychosocial stress at work: associations with psychosomatic complaints and absenteeism. *Social Science and Medicine* 58 (8): 1543-53.
- Graham, H. and Kelly, M. P. (2004). *Health inequalities: concepts, frameworks and policy*. London: Health Development Agency. http://194.83.94.67/uhtbin/cgiirsi.exe/1100853936/0/520/Health_Inequalities_Policy
- Griffin, J. M., Fuhrer, R., Stansfield, S. A. and Marmot, M. (2002). The importance of low control at work and home on depression and anxiety; do these effects vary by gender and social class? *Social Science and Medicine* 54: 783-98.
- Health Education Authority (1997). *Health Update: Workplace Health*. London: Health Education Authority.
- Kelly, M. P. and Swann, C. (2004). Evidence into practice and health inequalities. *Health Education* 104: 269-71.
- Killoran, A. and Kelly, M. P. (2004). Towards an evidence-based approach to tackling health inequalities: the English experience. *Health Education Journal* 63: 7-14.
- Kivimäki, M., Leino Arias, P., Luukkonen, R., Vahetera, J. and Kirjonen, J. (2002). Work, stress and risk of cardiovascular mortality: prospective cohort study of industrial employees. *British Medical Journal* 325: 857-60.
- Koh, D. and Jeyaratnam, J. (2002). Occupational health. In: Detels, R., McEwen, J., Beaglehole, R. and Tanaka, H. *Oxford Textbook of Public Health*, 4th edition. Oxford: Oxford University Press.
- Kuper, H. and Marmot, M. (2003). Job strain, job demands, decision latitude and risk of coronary heart disease within the Whitehall II study. *Journal of Epidemiology and Community Health* 57: 147-53.
- Kuper, H., Singh-Manoux, A., Siegrist, J. and Marmot, M. (2002). When reciprocity fails: effort reward imbalance in relation to coronary heart disease and health functioning within the Whitehall II study. *Occupational Environmental Medicine* 59: 777-84.

- Marmot, M., Siegrist, J., Theorell, T. and Feeney, A. (1999). Health and the psychosocial environment at work. In: Marmot, M. and Wilkinson, R. G. (eds). *Social Determinants of Health*. Oxford: Oxford University Press.
- Martikainen, P. T. and Valkonen, T. (1996). Excess mortality of unemployed men and women during a period of rapidly increasing unemployment. *Lancet* 348: 909-12.
- Marx, K. (1848). In: *Economic and Philosophic Manuscripts of 1844* (1961). Moscow: Foreign Languages Publishing House.
- Millward, L., Kelly, M. P. and Nutbeam, D. (2003). *Public Health Interventions Research: The Evidence*. London: Health Development Agency. www.hda.nhs.uk/evidence
- Montgomery, S. M., Bartley, M., Cook, D. G. and Wadsworth, M. E. J. (1996). Health and social precursors of unemployment in young men in Great Britain. *Journal of Epidemiology and Community Health* 50: 415-22.
- Montgomery, S. M., Cook, D. G., Bartley, M. and Wadsworth, M. E. J. (1998). Unemployment, cigarette smoking, alcohol consumption, and body weight in young men. *European Journal of Public Health* 8: 21-57.
- ONS (Office for National Statistics) (2004). Labour Force Survey, National Statistics online. www.statistics.gov.uk accessed 14/04/04.
- Schoon, I. and Parsons, S. (2002). Teenage aspirations for future careers and occupational outcomes. *Journal of Vocational Behavior* 60: 262-88.
- Wadsworth, M. E. J., Montgomery, S. M. and Bartley, M. J. (1999). The persisting effect of unemployment on health and social well-being in men in early working life. *Social Science and Medicine* 48: 1491-9.
- Westergaard, J., Noble, I. and Walker, A. (1989). *After Redundancy: The Experience of Economic Insecurity*. Cambridge: Polity Press.