



OBSERVATIONS PIECE

The experience of work-related stress across occupations

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Abstract

Purpose – To compare the experience of occupational stress across a large and diverse set of occupations. Three stress related variables (psychological well-being, physical health and job satisfaction) are discussed and comparisons are made between 26 different occupations on each of these measures. The relationship between physical and psychological stress and job satisfaction at an occupational level is also explored.

Design/methodology/approach – The measurement tool used is a short stress evaluation tool which provides information on a number of work related stressors and stress outcomes. Out of the full ASSET database 26 occupations were selected for inclusion in this paper.

Findings – Six occupations are reporting worse than average scores on each of the factors – physical health, psychological well-being and job satisfaction (ambulance workers, teachers, social services, customer services – call centres, prison officers and police). Differences across and within occupational groups, for example, teaching and policing, are detailed. The high emotional labour associated with the high stress jobs is discussed as a potential causal factor.

Research limitations/implications – This is not an exhaustive list of occupations and only concerns employees working within the UK.

Originality/value – There is little information available that shows the relative values of stress across different occupations, which would enable the direct comparison of stress levels. This paper reports the rank order of 26 different occupations on stress and job satisfaction levels.

Keywords Stress, Occupational psychology, Job satisfaction, Health and safety

Paper type Research paper

Introduction

This paper outlines research into the experience of occupational stress within a large and diverse set of occupations. The measurement tool used in the research is a short stress evaluation tool (Robertson Cooper, 2002a) which has been described as measuring a number of work related stressors and stress outcomes (Faragher *et al.*, 2004). Three of these stress outcomes (psychological well-being, physical health and job satisfaction) are discussed and comparisons made between different occupations on each of these measures.



The experience of workplace stress has been subject to a large amount of research and interest in the topic shows no sign of waning. It is now generally accepted that prolonged or intense stress can have a negative impact on an individual's mental and physical health (Health and Safety Executive, 2001; Cooper *et al.*, 2001). The Health and Safety Executive (2004) state that around half a million people in the UK experience work-related stress at a level that they believe is making them ill, up to five million people feel "very" or "extremely" stressed by their work and work-related stress costs society about £3.7 billion every year. Significant health implications have also been reported, for example, the HSE (2001) describes how ill health can result if stress is prolonged or intense, with the negative effects including heart disease, back pain, gastrointestinal disturbances, anxiety and depression. In addition to this they outline how stress can lead to other behaviours such as more tobacco smoking, excessive alcohol or caffeine consumption and skipping meals, which can also contribute to health problems.

The stress experienced by different occupation types and job roles has been discussed in many papers with a number of different occupations being described as experiencing above average levels of stress, for example, teachers (Travers and Cooper, 1993) healthcare (Cooper *et al.*, 1999), nurses and social workers (Kahn, 1993), and the ambulance service (Young and Cooper, 1999) to name but a few. There are a number of work related stressors which have been linked to an increased likelihood of an individual experiencing negative stress outcomes. Cooper and Marshall's (1976) original model of work related stress included five sources of stress at work, each of which are represented in the revised model of stress on which ASSET is based (Robertson Cooper, 2002b).

Cooper and Marshall's five sources of stress, with examples of the components of these sources given for each, are:

- (1) Intrinsic to the job, including factors such as poor physical working conditions, work overload or time pressures;
- (2) role in the organisation, including role ambiguity and role conflict;
- (3) career development, including lack of job security and under/over promotion;
- (4) relationships at work, including poor relationships with your boss or colleagues, an extreme component of which is bullying in the workplace (Rayner and Hoel, 1997); and
- (5) organisational structure and climate, including little involvement in decision-making and office politics.

Additional sources of stress also represented in the ASSET model are the impact a persons working life has on their life outside of work (work-life balance), the amount of satisfaction people derive from their work, the amount of control and autonomy people have in the workplace, and levels of commitment in the workplace both from the employee to the organisation and from the organisation to the employee.

The amount of stress a person experiences at work is likely to be a result of the interaction of a number of factors such as the type of work they are doing (their occupation), the presence of work stressors, the amount of support they receive both at work and at home and the coping mechanisms they use to deal with stress. Different occupations will have different basic stressors, for example, the threat of

violence, lack of control over work decisions or long working hours. However, people working in the same occupation will experience different levels of stress due to the interplay of many other factors, for example, their personality type and the support mechanisms they have available to them. It is not possible therefore, to say that all people working in a certain occupation will experience the same amount of stress. It is however, reasonable to state that employees working in high-risk occupations will have an increased likelihood of experiencing negative stress outcomes.

An extreme or advanced form of stress that is increasingly studied within occupations that have been termed as in the “human service” arena is burnout (Maslach and Jackson, 1981; Cordes and Dougherty, 1993). Burnout has been described as comprising three elements, emotional exhaustion – characterised by a lack of energy and a feeling that one’s emotional resources are used up, depersonalisation – marked by the treatment of clients as objects rather than people, and personal accomplishment – characterised by a tendency to evaluate oneself negatively. The specific role and influence of emotions in the workplace have been subject to further (and ongoing) research and emotion work has been described as possessing the following characteristics; it is a significant component of jobs that require either face to face or voice to voice interaction with clients; the emotions displayed in these jobs are intended to influence other people’s attitudes and behaviours; and the display of emotions has to follow certain rules (Zapf *et al.*, 1999). Subsequent research described how emotional dissonance can be experienced by employees if they are required to express emotions that they do not genuinely feel, which can result in feelings of hypocrisy and may ultimately lead to lowered self esteem and depression (Zapf, 2002). Fox and Spector (2002) reported that emotion work and the experience of emotional exhaustion are related and emotional dissonance is negatively correlated with job satisfaction.

Certain occupations are more likely to involve an emotional element of work suggesting that employees in these occupations are likely to be more vulnerable to stress than occupations that do not require emotional displays. For example, Kahn’s (1993) work suggests that caregivers (for example, nurses and social workers) are more likely to suffer from emotional exhaustion because they are required to display intense emotions within their jobs. Other stressors are also evident in many occupations, for example, the threat of violence (e.g. social work, police), lack of control over the job (e.g. call centres) or work overload (e.g. teachers). It is therefore, unsurprising that much of the research into workplace stress focuses on these “high risk” occupations. However, there is little information available that shows the relative values of stress across different occupations, which would enable the direct comparison of stress levels. For this reason the current paper aims to provide information on physical health, psychological well-being and job satisfaction across 26 different occupation types.

Methodology

The occupational scores on physical and mental ill health and job satisfaction are taken from research into occupational stress using the ASSET stress questionnaire. The factor structure, reliability and validity of ASSET are discussed elsewhere (Faragher *et al.*, 2004; Johnson and Cooper, 2003) and therefore, are not covered in depth here. However, a brief overview of the measurement tool is necessary to provide the

context in which the occupational data has been gathered. ASSET was devised as a short stress evaluation tool which can be completed quickly and easily by all employees in an organisation and as such is designed to be used in the first phase of a two-phase stress risk assessment (the second stage taking the form of a more detailed examination of the “problem areas” of an organisation as identified by high stress scores on ASSET).

Since ASSET is a copyrighted questionnaire it is not possible to reproduce it in its entirety. However, Table I outlines the 12 factors measured by the questionnaire.

The factors of interest in this paper are:

- (1) “Your Job” which correlates highly with the Warr (1990) job satisfaction scale (Faragher *et al.*, 2004) and as such is reported here as a useful indication of levels of job satisfaction.
- (2) “Physical Health”; and
- (3) “Psychological Well-being” which has been shown to have good convergent validity with the GHQ12 (Johnson and Cooper, 2003).

The GHQ and GHQ12 are accepted measure of minor psychiatric disorders (Goldberg *et al.*, 1997).

ASSET has been used as a stress measurement tool in over 26 organisations resulting in a large dataset of over 25,000 individuals encompassing many different occupation types. This enables the direct comparison of reported stress levels at an occupational level. Twenty-six different occupations were selected for this paper, each of which are ranked on their physical health, psychological well-being and job satisfaction scores. This enables the occupations to be compared, providing

Factor	Description
Work relationships	Sources of stress relating to the contacts people have at work with their colleagues/managers
Your job	Sources of stress relating to the fundamental nature of the job itself
Overload	Sources of stress relating to workload and time pressures
Control	Sources of stress relating to the amount of control people have over their work
Job security	Sources of stress relating to the level of job security perceived by people
Resources and communication	Sources of stress relating to the equipment/resources available at work and the effectiveness of communication in the workplace
Work-life balance	Sources of stress relating to the extent to which the demands of work interfere with people’s personal and home life
Pay and benefits	Sources of stress relating to pay and benefits
Commitment of the organisation to the employee	The extent to which people feel their organisation is committed to them
Commitment of the employee to the organisation	The extent to which people are loyal and dedicated to their organisation
Physical health	Physical symptoms associated with stress
Psychological well-being	Clinical symptoms indicative of stress induced mental ill-health

Table I.
ASSET factor structure

information on which occupations are reporting the highest levels of stress and the lowest levels of job satisfaction.

Results

Table II reports the sample size and mean score for each occupation on the measures of physical health, psychological well-being and job satisfaction. Table III displays these occupations in rank order with the rank of one indicating the highest score on the scale. Occupations appearing in italics are those that report scores above the norm for the ASSET database suggesting that these occupations are experiencing worse than average physical health and psychological well-being and lower than average job satisfaction.

Physical health

This factor includes questions about the physical symptoms often associated with stress. Higher scores on this scale indicate worsening physical health.

Psychological well-being

This factor includes questions relating to the clinical symptoms indicative of stress induced mental ill-health. It has been shown to correlate highly with the GHQ12. Higher scores indicate worsening psychological well-being.

Occupation	<i>n</i>	Physical health	Psychological well-being	Job satisfaction
Accountant	111	12.66	17.47	18.74
Allied health professionals	334	12.76	18.61	25.50
Ambulance	52	15.13	20.22	30.37
Analyst	210	12.26	16.79	17.94
Bar staff	71	14.35	18.43	24.60
Clerical and admin	1433	14.23	19.49	22.93
Customer services – call centre	278	14.45	18.90	28.74
Director (public sector)	144	12.39	18.78	21.10
Director/MD (private sector)	11	10.00	15.18	13.82
Fire brigade	269	12.55	20.56	24.25
Head teachers	295	13.53	17.48	22.50
Lecturers	1051	13.18	19.66	22.71
Medical/dental	166	12.67	17.82	25.66
Mgmt (private sector)	36	14.24	19.33	24.59
Mgmt (public sector)	686	12.80	17.47	22.87
Nursing	1539	12.83	18.33	27.14
Prison officer	118	14.34	19.26	33.89
Police	1027	14.09	19.03	29.24
Senior police	406	13.16	17.79	20.81
Research – academic	337	13.43	19.15	21.06
School lunchtime supervisors	165	12.13	15.43	20.09
Secretarial/business support	105	13.52	17.65	21.70
Social services providing care	535	14.85	24.35	28.14
Teachers	916	14.98	21.54	27.44
Teaching assistant	444	13.58	17.37	22.14
Vets	262	12.40	19.75	23.89
Norm score for ASSET	<i>25,352</i>	<i>13.83</i>	<i>18.81</i>	<i>25.28</i>

Table II.
Sample size and mean scores for occupations on physical health, psychological well-being and job satisfaction

Rank	Physical health	Psychological well-being	Job satisfaction
1	Ambulance	Social services providing care	Prison officer
2	Teachers	Teachers	Ambulance
3	Social services providing care	Fire brigade	Police
4	Customer services – call centre	Ambulance	Customer services – call centre
5	Bar staff	Vets	Social services providing care
6	Prison officer	Lecturers	Teachers
7	Mgmt (private sector)	Clerical and admin	Nursing
8	Clerical and admin	Mgmt (private sector)	Medical/dental
9	Police	Prison officer	Allied health professionals
10	Teaching assistant	Research – academic	Bar staff
11	Head teachers	Police	Mgmt (private sector)
12	Secretarial/business support	Customer services – call centre	Fire brigade
13	Research – academic	Director (public sector)	Vets
14	Lecturers	Allied health professionals	Clerical and admin
15	Senior police	Bar staff	Mgmt (public sector)
16	Nursing	Nursing	Lecturers
17	Mgmt (public sector)	Medical/dental	Head teachers
18	Allied health professionals	Senior police	Teaching assistant
19	Medical/dental	Secretarial/business support	Secretarial/business support
20	Accountant	Head teachers	Director (public sector)
21	Fire brigade	Mgmt (public sector)	Research – academic
22	Vets	Accountant	Senior police
23	Director (public sector)	Teaching assistant	School lunchtime supervisors
24	Analyst	Analyst	Accountant
25	School lunchtime supervisors	School lunchtime supervisors	Analyst
26	Director/MD (private sector)	Director/MD (private sector)	Director/MD (private sector)

Table III.
Occupations ranked on physical health, psychological well-being and job satisfaction

Job satisfaction

This factor includes questions relating to sources of stress regarding the fundamental nature of the job itself. It has been shown to correlate highly with the Warr job satisfaction scale and as such is treated here as representative of levels of job satisfaction. Higher scores indicate lower job satisfaction.

The three factors were correlated to see to what degree physical health, psychological well-being and job satisfaction were related to each other at an occupational level. Significant correlations were found between all of the factors (Table IV).

Table IV reveals that as physical health deteriorates so too does psychological well-being. Likewise, as physical health and psychological well-being deteriorate job satisfaction goes down. These findings are in line with previous research suggesting that physical and mental health and job satisfaction are related (Dewe, 1991).

	Physical health	Psychological well-being	Job satisfaction
Physical health	–	0.67**	0.75**
Psychological well-being	0.67**	–	0.63*
Job satisfaction	0.75**	0.63*	–

Table IV.
Correlations between physical health, psychological well-being and job satisfaction

Notes: Correlations are significant at: * $p < 0.01$; ** $p < 0.001$

Discussion

Of the 26 occupations included in the research, six (ambulance, teachers, social services, customer services – call centres, prison officers and police) were identified as having worse than average scores on each of the three factors. These are the occupations that were reported as being the most stressful regarding physical and psychological well-being and as having the lowest levels of job satisfaction. This is not an entirely surprising finding as most of these have been identified previously as being stressful occupations (Travers and Cooper, 1993; Kahn, 1993; Young and Cooper, 1999).

Each of the above occupations involve emotional labour, an element of work which has been described as relevant to the experience of work related stress (Zapf *et al.*, 1999; Zapf, 2002) in that all these job roles require either face to face or voice to voice interaction with clients and in each of these occupations the emotions that the employees are required to display as part of their job have to follow strict rules. Think of for example, the emotional labour that teachers have when working with unruly or unwilling to learn children without letting a child see their frustration or the demands on police officers when facing potentially dangerous and volatile situations whilst through necessity having to be outwardly calm and appear to be fully in control of a situation.

Although the emotional component of work is almost certainly relevant to the experience of work stress it cannot be the only explanation for high stress levels as the lower than average scores on psychological well-being and physical health reported by nurses (a job with high emotional content) are anomalous to this theory. Other stressors, for example, the threat of violence in the workplace (a risk factor in social services, prison officers and police), lack of control over work issues (often discussed in relation to call centre work, for example, see Holman and Fernie (2000)) and work overload (nurses, teachers and social services) to name but a few will undoubtedly all play an important role in the experience of work stress. The identification of the causes of stress for any particular occupation would require analysis of the presence and intensity of workplace stressors, which is beyond the scope of the current paper.

The least stressed and most satisfied occupations are analysts, school lunchtime supervisors and directors/MDs within the private sector. Interestingly directors in the public sector score higher on all three factors than directors/MDs in the private sector although this finding is reversed when looking at management rather than director level. Here, management in the private sector score higher than management in the public sector on all three factors. However, given the low numbers of directors/MDs from the private sector ($n = 11$) these scores should be interpreted with caution.

The rank order of these occupations provides information on the relative stress and job satisfaction scores between occupations. Of equal interest however, is the comparison of scores across occupations within the same occupational group, for example, within teaching and policing.

It is generally recognised that teaching is a stressful occupation and past research has supported this (Travers and Cooper, 1993). This is reflected in the positioning of teachers at above average levels on physical and psychological health and lower than average levels of job satisfaction. However, the ASSET scores also reveal that teachers are experiencing higher stress levels and lower job satisfaction levels than both head teachers and teaching assistants, neither of whom score above the norm on any

of the factors. One possible reason for this is that teachers are working in close contact with children every working day and therefore, will be experiencing high levels of emotional labour. Head teachers and teaching assistants do not generally take charge of the classroom or if they do it is for short periods of time or whilst under supervision. It is also possible that the differences between teachers and head teachers are due to their very different roles, with head teachers being in a more managerial position. The difference between teachers and teaching assistants could be the result of teachers being more accountable for the day-to-day running of the classroom and levels of performance (both their own and their students) reflecting on their ability as a teacher. Additionally, many teachers are concerned about the amount of paperwork they are now required to complete, often it has been argued at the detriment of time teaching or preparing lessons for the children. Teaching assistants do not have this level of paperwork. Finally, if teaching assistants are trainee teachers they will have entered the profession relatively recently and therefore, are not able to compare the “old” way of teaching with the “new”. A comparison that any teacher who has been in the profession for more than ten years will have an opinion on. The changes within the teaching profession within the last ten years or so have been blamed for the high levels of stress reported by teachers (Moriarty *et al.*, 2001). Of course much of this is speculative and in order to tease out the reasons behind these differences a full study on stress within our schools would be required.

Another interesting area for discussion is the differences found within different levels of the police. Police officers were one of the top six occupations experiencing the most stress and least job satisfaction. However, in comparison, senior police officers are scoring much lower scores revealing them to be less stressed and more satisfied. Again it is not possible to be sure why these differences are occurring but the fact that on the whole police officers will spend more time “on the beat” and interacting with the public than senior police officers who will spend at least a proportion of their time behind the scenes suggests that the experience of emotional labour may again prove to be salient.

Occupations from within the medical profession reveal that although nurses, medical dental and allied health professionals are all scoring lower than average levels of job satisfaction they are not reporting high scores on the stress factors. This is contrary to previous findings that suggest nurses in particular experience higher than average stress levels (Kahn, 1993).

On the whole the rank order of the occupations is consistent with existing research and general belief about how stressful these different occupations are. However, as detailed above there are some interesting differences between roles within the same occupational setting, for example, teachers and head teachers, and police and senior police. The premise that emotional labour is an important facet of the experience of occupational stress is supported in that all of the high stress occupations revealed above involve high levels of emotional labour. However, the identification of specific stressors for individual occupations requires more in-depth analysis of the interaction between stressors and stress outcomes.

The finding that physical health, psychological well-being and job satisfaction are linked was expected and supports existing research in this area (Dewe, 1991). It is therefore, not surprising that many of the occupations that are reporting high stress levels are also reporting low levels of job satisfaction.

This paper provides information on the rank order of occupations in relation to job satisfaction and the experience of negative stress outcomes, and as such allows the identification of “high” and “low” stress occupations. Although some suggestions have been made to explain the findings, a full analysis of the relevant stressors for any particular occupation is not attempted. Past research into high-risk occupations is on the whole supported with occupations previously described as reporting high stress levels also indicating high stress levels here. Further work on the ASSET database, including the analysis of the particular stressors most relevant to individual occupations, is underway and will be reported in subsequent papers.

References

- Cooper, C.L. and Marshall, J. (1976), “Occupational sources of stress: a review of the literature relating to coronary heart disease and mental ill health”, *Journal of Occupational Psychology*, Vol. 49, pp. 11-28.
- Cooper, C.L., Clarke, S. and Rowbottom, A.M. (1999), “Occupational stress, job satisfaction and well-being in anaesthetists”, *Stress Medicine*, Vol. 15, pp. 115-26.
- Cooper, C.L., Dewe, P.J. and O’Driscoll, M.P. (2001), *Organizational Stress: A Review and Critique of Theory, Research and Applications*, Sage Publications, CA.
- Cordes, C.L. and Dougherty, T.W. (1993), “A review and an integration of research on job burnout”, *Academy of Management Review*, Vol. 18 No. 4, pp. 621-56.
- Dewe, P. (1991), “Primary appraisal, secondary appraisal and coping: their role in stressful work encounters”, *Journal of Occupational Psychology*, Vol. 64, pp. 331-51.
- Faragher, E.B., Cooper, C.L. and Cartwright, S. (2004), “A shortened stress evaluation tool (ASSET)”, *Stress and Health*, Vol. 20 No. 4 pp. 189-201.
- Fox, S. and Spector, P.E. (2002), “Emotions in the workplace: the neglected side of organizational life introduction”, *Human Resource Management Review*, Vol. 12, pp. 1-5.
- Goldberg, D.P., Gater, R., Sartorius, N. and Ustun, T.B. (1997), “The validity of two versions of the GHQ in the WHO study of mental illness in general health care”, *Psychological Medicine*, Vol. 27, pp. 191-7.
- Health and Safety Executive (2001), *Tackling Work-related Stress*, HSE Books, London.
- Health and Safety Executive (2004), “Work related stress”, available at: www.hse.gov.uk/stress/index.htm (accessed 7 May 2004).
- Holman, D. and Fernie, S. (2000), “Can I help you? Call centres and job satisfaction”, *Centrepiece. The Magazine of Economic Performance*, Vol. 5 No. 1, pp. 2-5.
- Johnson, S. and Cooper, C. (2003), “The construct validity of the ASSET stress measure”, *Stress and Health*, Vol. 19, pp. 181-5.
- Kahn, W.A. (1993), “Caring for the caregivers: patterns of organizational caregiving”, *Administrative Science Quarterly*, Vol. 38 No. 4, pp. 539-64.
- Maslach, C. and Jackson, S.E. (1981), “The measurement of experienced burnout”, *Journal of Occupational Behaviour*, Vol. 2, pp. 99-113.
- Moriarty, V., Edmonds, S., Blatchford, P. and Martin, C. (2001), “Teaching young children: perceived satisfaction and stress”, *Educational Research*, Vol. 43 No. 1, pp. 33-46.
- Rayner, C. and Hoel, H. (1997), “Workplace bullying: a concise review of literature”, *Journal of Community and Applied Social Psychology*, Vol. 7.
- Robertson Cooper (2002a), ASSET, Robertson Cooper Ltd, Manchester.

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- Robertson Cooper (2002b), ASSET Technical Manual, Robertson Cooper Ltd, Manchester, UK.
- Travers, C.J. and Cooper, C.L. (1993), "Mental health, job satisfaction and occupational stress among UK teachers", *Work and Stress*, Vol. 7 No. 3, pp. 203-19.
- Warr, P. (1990), "The measurement of well-being and other aspects of mental health", *Journal of Occupational Psychology*, Vol. 63, pp. 193-210.
- Young, K.M. and Cooper, C.L. (1999), "Change in stress outcomes following an industrial dispute in the ambulance service: a longitudinal study", *Health Services Management Review*, Vol. 12, pp. 51-62.
- Zapf, D. (2002), "Emotion work and psychological well-being: a review of the literature and some conceptual considerations", *Human Resource Management Review*, Vol. 12, pp. 1-32.
- Zapf, D., Vogt, C., Seifert, C., Mertini, H. and Isic, A. (1999), "Emotion work as a source of stress: the concept and development of an instrument", *European Journal of Work and Organizational Psychology*, Vol. 8 No. 3, pp. 371-400.