

Occupational stress in consultants in accident and emergency medicine: a national survey of levels of stress at work

R Burbeck, S Coomber, S M Robinson, C Todd

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Objective: To assess levels of occupational stress in UK accident and emergency (A&E) consultants.

Method: Postal survey of complete enumeration of UK consultants.

Main outcome measures: GHQ-12 and SCL-D, and respondents' reported perceptions of stressors.

Results: Of 371 valid respondents (78%), 21 declined to participate. Of the remaining 350, 154 (44.4%) had GHQ-12 scores over the threshold for distress, which is much higher than found in other studies of doctors. Levels of depression as measured by the SCL-D at 18% (n=63) were slightly higher than other groups. Thirty four (10%) reported suicidal ideation. Women had significantly higher SCL-D scores than men (U=6604, p<0.01). Respondents were highly satisfied with A&E as a specialty. Protective factors found in other occupational groups did not apply. Only one demographic or work related factor; number of hours reportedly worked during previous week by respondents in full time posts (median=57, interquartile range=57), significantly correlated with either stress outcome measure (GHQ-12 scores) (p=0.126, p<0.03). Logistic regression modelling revealed "being overstretched" (OR=1.18), "effect of hours (OR=0.82) and stress (OR=1.58) on family life", and "lack of recognition" (OR=1.32) were significant predictors of GHQ identified caseness, while "the effect of stress on family life" (OR=1.53), low prestige of specialty (OR=1.20), and "dealing with management" (OR=1.28) predicted SCL-D scores.

Conclusion: There are high levels of psychological distress among doctors working in A&E compared with other groups of doctors. There is likely to be an effect on staff morale and career longevity. Interventions to improve the working lives of A&E consultants are required, in particular a reduction in hours worked.

See end of article for authors' affiliations

Correspondence to:
Dr S M Robinson,
Emergency Department,
Addenbrooke's Hospital
NHS Trust, Hills Road,
Cambridge, UK;
susan.robinson@
addenbrookes.nhs.uk

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Occupational stress is a recognised problem in health care workers. Doctors are considered to be at particular risk,¹ with suicide rates among medical practitioners higher than in similar professional groups.^{2,3} Stress can lead to serious ill health,⁴ affect career longevity, and cause personal distress.

Accident and emergency (A&E) is an evolving specialty in the UK where consultants face particular challenges such as unpredictable workload, high patient attendances, limited resources, repeated exposure to traumatic events, potentially violent situations, and critical decision making often based on incomplete information. Studies of other groups of doctors show psychological morbidity levels of between 21% and 28%,^{1,5,6} although one small scale study reported a level of 46%.⁷ Studies of distress in North American emergency physicians show mixed results. There are reports of high levels of burnout and stress,⁸ but others have reported lower levels similar to those of UK studies.⁹ An international study of emergency physicians reported high levels of stress and depression among UK A&E consultants compared with those from other countries,¹⁰ although overall levels were not high.¹¹ The last major study of UK based A&E consultants was based on data gathered in 1990.¹¹ Since that time there have been a number of changes in the day to day work of A&E departments in the UK. There has been a steady albeit modest increase in attendance by 1% per annum.¹² Recently the Audit Commission reported an increase in waiting times in most departments, with fewer people seeing a doctor within an hour or being admitted within four hours; with wide differences between departments in these measures.¹³ Studies of other specialties reveal considerable psychological pressure on doctors.¹⁴ This study aims to assess current levels of occu-

pational stress as measured by psychological morbidity and depression.

METHOD

Lists of practising A&E consultants were supplied by the British Association of Emergency Medicine (BAEM) and the Faculty of Accident and Emergency Medicine (FAEM). All consultants were sent a questionnaire accompanied by supporting letters from the FAEM and BAEM presidents. Questionnaires were confidential, with a code being available only to one researcher (RB). Questionnaires were returned in prepaid envelopes to a neutral site. Non-responders were mailed on two further occasions. Respondents were not given any specific instructions on when to complete the questionnaire but were simply requested to return them as soon as possible.

The questionnaire requested demographic and work related information, and included the general health questionnaire-12 (GHQ-12) to assess psychological distress,¹⁵ and the symptom checklist-depression scale (SCL-D) to measure depression.¹⁶ Respondents were asked to rate possible occupational stressors for frequency and stressfulness (analysis was based on the multiplication of the two scores), and offer suggestions for improvement. A free text question required respondents to describe a recent stressful incident and their response.

The general health questionnaire is a well validated self administered screening test, designed to identify short-term changes in mental health (depression, anxiety, social dysfunction, and somatic symptoms).^{15,17} It focuses on breaks in normal function of less than two weeks' duration rather than

Table 1 Demographic characteristics

	Number	Median	Range	SD
Age	346	45	31–67	7.01
Years as a consultant	343	7	1–30	6.24
Gender				
Male	292	83.4%		
Female	58	16.6%		
Post				
Clinical director	103	29.6%		
Consultant	239	68.7%		
Academic post	6	1.7%		
Base specialty				
Anaesthesia	13	3.8%		
Surgery	185	53.5%		
Medicine	41	11.8%		
A&E	106	30.6%		
Other	1	0.3%		
Hospital type				
Teaching hospital	103	29.4%		
District general hospital	247	70.6%		
Full time				
Total	318	91.1%		
Men	274			
Women	44			
Part-time				
Total	31	8.9%		
Men	17			
Women	14			
Marital status				
Single	19	5.5%		
Married/cohabiting	312	89.7%		
Separated/divorced/widowed	17	4.9%		
Partner a doctor?				
Yes	102	29.9%		
No	219	64.2%		
N/A	20	5.9%		

Table 2 Reported hours worked in the previous week

	NHS hours	Number	Non-NHS hours	Number	Total hours
Full time					
Median	55	307	6	136	57
Range	15–168*		1–88		
Part-time					
Median	44	30	10	88	46
Range	8–117		1–54		

*Seven respondents reported working 168 hours in the previous week—that is, 24/7.

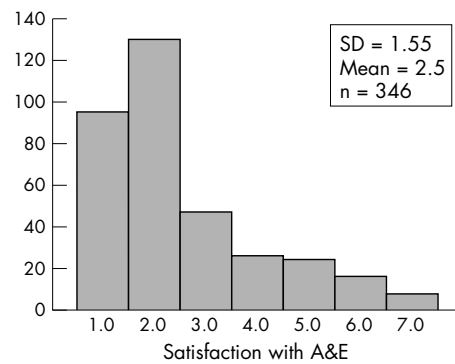
lifelong traits.¹⁵ Using the GHQ scoring method¹⁵ a score over three indicates possible psychiatric “caseness”, although a psychiatric assessment is needed for clinical diagnosis.

The SCL-D is a subset of 13 items from the symptom checklist 90 (SCL-90).¹⁶ Both the 90 item instrument and its individual subscales have been well validated.¹⁸ The SCL-D reflects a broad range of the concomitants of clinical depression.¹⁹ A mean score over 1.5 indicates the possible presence of depression.

Analysis

Data were double entered to ensure accuracy and analysed using SPSS V9.0.1. Non-parametric statistics were used in analyses of report data, and GHQ-12 and SCL-D scores. Qualitative data, including aspects of the job respondents enjoyed, descriptions of a recent stressful incident, and additional suggestions for improvements, were analysed using the constant comparative method to develop coding frames.

Logistic regression was used to build a predictive model of GHQ-12- and SCL-D defined caseness. Demographic and

**Figure 1** Satisfaction with A&E as a career choice.**Table 3** Spearman's correlation coefficients between outcome measures and demographic and work related data

Between	Spearman's ρ	p
SCL-D scores and age	-0.091	0.093
GHQ-12 scores and age	0.036	0.502
GHQ-12 scores and years as consultant	-0.062	0.253
SCL-D scores and years as consultant	0.033	0.547
GHQ-12 scores and hours* (all respondents)	0.091	0.098
SCL-D scores and hours* (all respondents)	0.059	0.317
GHQ-12 scores and hours* (full time posts)	0.126	0.028
SCL-D scores and hours* (full time posts)	0.091	0.111
GHQ-12 scores and hours* (part time posts)	-0.123	0.508
SCL-D scores and hours* (part time posts)	-0.188	0.312
GHQ-12 and satisfaction rating	0.347	0.001
SCL-D scores and satisfaction rating	0.357	0.001

*Hours reportedly worked during previous week.

stressor variables were correlated individually with both GHQ-12 and SCL-D scores. The six most highly correlated (in all cases $p < 0.001$) were entered as independent variables in multivariate logistic regressions with GHQ-12 and SCL-D scores as dependent variables.

RESULTS

From 479 questionnaires mailed to valid respondents, 371 were returned (78%). Of these, 14 respondents indicated they

Table 4 GHQ-12 and SCL-D scores: comparison by respondent group

Between	U	P
Gender (SCL-D)	6604	0.009
Gender (GHQ-12)	8181	0.902
Partner a doctor (SCL-D)	10417.5	0.433
Partner a doctor (GHQ-12)	10305.5	0.292
Full/part-time (SCL-D)	4656	0.630
Full/part-time (GHQ-12)	4393.5	0.351
Hospital type (GHQ-12)	11710.5	0.309
Hospital type (SCL-D)	11619	0.221
Do other sessions* (GHQ-12)	6256	0.148
Do other sessions* (SCL-D)	6122	0.089
Clinical director v consultants (GHQ-12)	11766.5	0.756
Clinical director v consultants (SCL-D)	12166	0.913
Responsibility for beds (GHQ-12)	12393	0.213
Responsibility for beds (SCL-D)	13307	0.796
Changed from another specialty (GHQ-12)	10777.5	0.775
Changed from another specialty (SCL-D)	10466.5	0.465

*Based on those consultants who stated that they did other sessions other than 'on-call'.

Table 5 Occupational stressors ranked by mean frequency

Stressor	Frequency rating	SD
Lack of beds within the main hospital	1.81	0.43
Being overstretched at times	1.67	0.48
Conflicts between clinical work and admin duties	1.60	0.55
Keeping up to date with knowledge	1.59	0.54
Dealing with management in general	1.57	0.56
Effect of hours of work on personal/family life	1.55	0.55
Making the right decision alone	1.49	0.62
Dealing with individual managers	1.47	0.62
Making the right decision as a team	1.46	0.67
Making time for teaching	1.41	0.63
Compromising standards when resources are short	1.40	0.61
Dealing with death	1.37	0.63
Talking to distressed relatives	1.28	0.71
Effect of stress on personal/family life	1.28	0.65
Fear of making mistakes	1.16	0.53
Having to do menial of repetitive tasks	1.14	0.64
Lack of recognition of own contribution by others	1.14	0.69
Low prestige of specialty	1.14	0.70
Pressure of charter standards	1.09	0.72
Difficult relations with senior colleagues	1.02	0.50
Lack of protocols for patient management	0.99	0.58
Sleep deprivation	0.94	0.61
Making time for research	0.92	0.71
Managing A&E budgets	0.88	0.77
Too much responsibility	0.83	0.71
Difficult relations with junior doctors	0.82	0.48
Threat of violence	0.79	0.52
Treatment withdrawal	0.77	0.58
Over-zealous/inappropriate treatment	0.75	0.53
Difficult relations with nursing staff	0.73	0.53
Feeling underutilised	0.54	0.67
Commitments to private practice	0.50	0.63
Sexual harassment	0.06	0.23

Table 6 Logistic regression model of occupational stressors which predict GHQ-12 >3

Occupational stressor	Odds ratio	95% CI
Being overstretched at times	1.18	1.04 to 1.34
Effect of hours on personal/family life	0.82	0.68 to 0.97
Lack of recognition of own contribution by others	1.32	1.16 to 1.50
Effect of stress on personal/family life	1.58	1.33 to 1.88

did not wish to complete the questionnaire and seven were reportedly on long term sick leave or sabbatical. Therefore 350 questionnaires were included. The majority of respondents were male consultants in their 40s in full time posts. Demographic and work related characteristics are presented in table 1.

On average respondents reported working 55 hours for the NHS during the previous week, although the range was wide (table 2). On average respondents indicated there were 65 443 attendances per year to their department. Thirty four per cent (n=122) of respondents had responsibility for beds (mean number of beds =9.26), mostly short stay, observation beds.

Just over 25% (n=88) of respondents reported that they had changed to A&E from another specialty, most commonly from surgical specialties (64.7%, n=55). The most frequently stated reasons for changing were that A&E was "more challenging" (41.4%, n=29) and offered "better prospects"

Table 7 Logistic regression model of occupational stressors which predict SCL-D >1.5

Occupational stressor	Odds ratio	95% CI
Effect of stress on personal/family life	1.53	1.34 to 1.76
Low prestige of specialty	1.20	1.06 to 1.37
Dealing with management in general	1.28	1.09 to 1.51

(35.7%, n=25). Respondents were highly satisfied with A&E as a specialty with 65% (n=225) scoring satisfaction in the top two points on a seven point scale (fig 1). They enjoyed in particular the variety of the job (stated by 54.9%, n=178), the chance to teach and train others (26.5%, n=86), the hands on clinical contact with patients (25%, n=81), and "glamorous" elements such as "excitement" and the "adrenaline rush" (20.1%, n=65).

Just over 44% of respondents (n=154) had GHQ-12 scores indicative of psychological distress and just over 18% (n=63) had SCL-D scores indicative of depression. In addition, 34 respondents (nearly 1 in 10) scored the SCL-D item "Thoughts of ending your own life" other than "not at all". This latter group had significantly higher GHQ-12 and SCL-D scores compared to other respondents (GHQ-12: U=1831.5, p<0.001, SCL-D: U=681.5, p<0.001).

There were significant correlations between GHQ-12 scores and SCL-D scores (Spearman's $\rho=0.730$, p<0.001) and between each measure individually and satisfaction rating. There were no statistically significant correlations between either stress outcome measure and demographic and work-related data, other than between GHQ-12 scores and hours worked during the previous week in those working full time (table 3).

In a comparison between groups of respondents, women had significantly higher SCL-D scores than men (U=6604, p<0.009), the only statistically significant difference between groups (table 4).

Table 5 presents simple ranking of respondents' ratings of occupational stressors. In logistic regression four stressors were shown to be significant predictors of scores on GHQ-12 >3 (table 6) and three of SCL-D >1.5 (table 7). Those predicting GHQ-12 >3 were highly correlated with each other (table 8), indicating the probable existence of an underlying common factor between these stressors.

Analysis of the topics for stressful incident descriptions showed that the most common issue related to dealing with management (15%, n=48). Relationships with staff and colleagues both within and outside A&E (14.7%, n=47), and problems caused by lack of beds within the main hospital (12.9%, n=41) were other common themes.

Respondents most highly ranked suggestions for improvement to A&E were: "better availability of experienced middle grade doctors 24 hours/day", "having managers that understood A&E issues", and "resolving delays in patient transfers out of A&E". Respondents also put forward suggestions for improvements, most commonly an increase in available resources, changes in local departmental organisation, and changes in terms and conditions.

DISCUSSION

The central finding of this study is a high level of psychological distress among A&E consultants. Over 44% of A&E respondents had GHQ-12 scores indicative of possible psychiatric caseness, compared with between 21% and 28% of respondents in other studies of UK based consultants. Levels in the general working population are 18%.²⁰ Eighteen per cent of respondents had SCL-D scores indicative of depression. This

Table 8 Values of Spearman's ρ indicating correlations between occupational stressors predicting GHQ-12 >3

	Effect of stress on personal/family life	Effect of hours of work on personal/family life	Lack of recognition of own contribution by others	Being overstretched at times
Effect of stress on personal/family life		0.765	0.463	0.485
Effect of hours of work on personal/family life			0.457	0.528
Lack of recognition of own contribution by others				0.452

All correlations are significant at the 0.01 level (two tailed).

is a slightly higher rate than that reported by other studies,^{10, 11} although these studies used different measuring tools. It is a much higher rate than that found by Coomber¹⁴ who measured levels in intensive care unit (ICU) consultants as 12% also using the SCL-D. Nearly 1 in 10 respondents in the present study reported recent suicidal thoughts; these doctors had statistically significantly higher GHQ-12 and SCL-D scores compared with the rest of the sample. Although levels of distress in a person may fluctuate, and this survey represents only a snapshot in time, the high prevalence reported suggests nevertheless that this is a major problem.

This study did not find that protective factors identified in similar occupational groups applied to A&E consultants, for example, being married^{10, 21, 22} or being older and more experienced (the "survivor category").^{21, 23} Over 65% of respondents were highly satisfied with A&E as a specialty. This finding, along with the failure of job satisfaction to enter the regression model predicting GHQ "caseness", suggest that high GHQ-12 scores are unlikely to be attributable to respondents disliking their chosen field. This does not support the finding by Ramirez *et al*⁹ that job satisfaction protects against the effects of stress. In addition we found no relation between entering emergency medicine from another specialty and either GHQ or SCL scores. However, we did find that a significantly higher proportion of female respondents had SCL-D scores indicative of depression compared with their male colleagues, which supports findings by Gallery *et al*⁹ and Whitley *et al*.¹⁰

Only a single work related factor was significantly associated with either of the stress outcome measures. This was the number of hours worked by respondents in full time positions. Here, there was a weak, although statistically significant, association between hours worked and GHQ-12. This is perhaps not surprising, as long hours have been documented as a cause of stress.²³ This finding is supported by respondents' ratings of occupational stressors, where there were significant strong associations between "the effect of hours on family/personal life" and both GHQ-12 and SCL-D scores. "Being over-stretched at times" and "the effect of stress on family/personal life" also scored highly. Respondents made several suggestions for improvement relating to the number of hours worked—reducing on call commitment, "Reduced on call from 1:2", and 'Rota 1 in 3 to 1 in 6 or 1 in 8". Time off was also suggested, for example, "day off midweek" and "paid sabbatical after 5 or 10 years".

These results imply that the focus of change should be on prevention at the primary level. For example, revising job plans so that time for teaching and administration is included as fixed sessions, while at the same time ensuring adequate numbers of doctors are available to cover the clinical work. Dealing with management was a common topic described as a recent stressful incident, particularly in relation to work patterns, for example: "Argument with management who wished to add new weekend sessions to workload. My wife not happy with me taking this [sic] sessions on. Ongoing difficulty reconciling management expectations with family life. Interference with family life causing marital stress and increased workload at basic grade resulting in inability to provide proper consultant service."

In his demand-control model of occupational stress, Karasek²⁴ suggests that stress is determined by an interaction of organisational demands (stressors) and control over work. Such a model is supported by this study: respondents rated occupational stressors intrinsic to the practice of emergency medicine, such as talking to distressed relatives and dealing with death, less highly than factors outside their direct clinical responsibility, such as "lack of beds within the main hospital". This factor was significantly correlated with GHQ-12 and SCL-D scores but the association was not as strong as for other stressors. It was the third most common topic described as a stressful incident, with some respondents describing situations that seemed to compromise patient care—for example, "... completely full with patients occupying every trolley (many as 'in-patients' (no beds)). Female patient collapsed in waiting room (had just arrived)—cardiac arrest. Taken to Resus—no trolleys. We therefore carried out full ALS resuscitation on the floor. Patient successfully resuscitated and transferred to ICU."

Although this study found high levels of satisfaction with A&E, it did not assess whether respondents were considering leaving the specialty before retirement age. To determine the effects of stress on career longevity, a follow up study could focus on reasons why consultants leave the specialty. This study has found high levels of psychological distress in A&E consultants compared with that found in other specialties. It would be interesting to determine which characteristics, or combination of characteristics, within A&E are particularly problematic.

The HSE guidance on occupational stress²⁵ requires that risk of stress at work be assessed and reasonable care taken to ensure health is not placed at risk through excessive and sustained levels of stress arising from work. Responsibility to alleviate or reduce stress is the responsibility of the employer, in this case NHS Trusts. In addition, the recent NHS white paper²⁶ sets out the requirements of clinical governance whereby "... NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish". To realise these ideals, the results of this survey indicate that the issue of occupational stress among A&E consultants must be tackled. A high level of distress is not only detrimental to the health and personal lives of those affected, but it is also likely to decrease the effectiveness and reliability of a consultant's clinical work. Sustained periods of distress are likely to affect staff morale and career longevity. In a specialty, which is under increasing pressure to provide more efficient and effective services for patients, it is important that highly trained doctors perform well. Thus, it is logical to resolve factors that may contribute to attrition rates of consultants, who are expensive to train (£232 000)²⁷ and take time to replace (12 years).²⁷ Each lost working year of a consultant costs the NHS £30 000 in terms of annuitised training costs over his or her expected working life.²⁷ Rather than permitting a situation to continue, in which so many senior A&E doctors apparently suffer psychological distress and which may reduce their effectiveness and longevity of working life, a more rational strategy for

the NHS would be to provide employment environments, in which doctors can practice effectively without compromising their own health.

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Contributors

Rachel Burbeck was involved in data collection and analysis, the literature search and review, and manuscript preparation. Sally Coomber was involved in the initial concept and design of the study, and reviewing the manuscript. Sue Robinson initiated the study, was involved in its concept and design, the initial literature research, and contributing to, editing and reviewing the manuscript. She is also the study guarantor. Chris Todd was involved in the concept and design of the study, data analysis, manuscript preparation, and contributed to reviewing and editing the manuscript.

Authors' affiliations

R Burbeck, S M Robinson, Addenbrooke's Hospital NHS Trust, Cambridge, UK
S Coomber, Ipswich Hospital NHS Trust, Ipswich, UK
C Todd, Health Services Research Group, University of Cambridge, UK

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