

Correlates of work-related stress among consultants and senior registrars in accident and emergency medicine

J. HEYWORTH*, T. W. WHITLEY[†], E. J. ALLISON JR[†] & D. A. REVICKI[‡]

*Accident and Emergency Department, Queen Alexandra Hospital, Portsmouth,
[†]Department of Emergency Medicine, East Carolina University School of Medicine,
North Carolina, U.S.A., and [‡]Battelle Human Affairs Research Centers, Washington
DC, U.S.A.

SUMMARY

A mail survey was conducted of consultants and senior registrars practising accident and emergency (A&E) medicine in the United Kingdom. The 201 respondents (72%) comprised 154 consultants (70.6%) and 47 senior registrars (77%), who provided demographic information and completed inventories measuring stress, depression, task and role clarity, work group functioning and overall satisfaction with work. The respondents did not report particularly high levels of stress or depression and generally evaluated aspects of their work environments favourably. Higher levels of stress were reported by consultants and respondents from district general hospitals. Levels of stress were similar to those reported by other groups of health care providers. Respondents generally considered tasks and roles to be clearly defined, work groups to be supportive, efficient units and work satisfying. There was no statistically significant correlation on the affective scales for the number of patient attendances, on call commitment or staffing numbers.

Senior staff with more than 10 years experience in the specialty reported more satisfaction with work and work group functioning, and perceived their tasks and roles to be significantly clearer. Consultants over 45 evaluated their work groups favourably and were more likely to view them as cohesive, smoothly functioning units than senior registrars.

The results probably reflect the *ad hoc* coping strategies adopted by a group of

Correspondence: J. Heyworth, Accident and Emergency Department, Queen Alexandra Hospital, Portsmouth, Hampshire, PO6 3LY.

doctors, who have already demonstrated appropriate personality characteristics by completing a long training programme, with no realistic alternative late career opportunities. To prevent mid or late career attrition, however, A&E doctors should receive formal training in stress recognition and avoidance. Accessible counselling without stigma should be easily available. Senior A&E doctors have a role in detecting and managing stress amongst other staff in the department.

INTRODUCTION

The impact of work-related stress on job satisfaction and career longevity in all branches of medicine is receiving increased attention. A&E medicine has the potential to be at least as stressful as any other specialty, and the increasing rates of burn-out and attrition amongst career emergency physicians in the U.S.A is becoming apparent. Gallery (1992) reported a disproportionate number of emergency physicians who reported high levels of stress and depressive symptomatology, and planned to leave the specialty (26.7% within 5 years). Twelve per cent intended to leave the specialty within 1 year, which represents an attrition rate four times greater than the rest of the physician population.

Potential sources of stress identified in emergency medicine in the U.S.A. have included sleep deficit, rotating shifts, emergency department gridlock, difficult patients, the threat of malpractice, acquired infection and daily exposure to death, illness and crisis (people pain) (Dwyer *et al.*, 1991).

Stressors in the U.K. are equally numerous and may include problems with resources, the current changes in the NHS, complaints and litigation, career development, relationships at work, organizational structure and the physician's role within the organization (BMA, 1992 pp. 5–12). Factors are often outside doctors' control, e.g. patient overload.

Attrition rates amongst U.K. A&E physicians have not been studied, but anecdotally remain very low, as do rates of burn-out and prolonged absence on sick leave due to stress. However, problems with stress and anxiety do exist amongst UK medical practitioners, as illustrated by the incidence of suicide, alcoholism and drug abuse (BMA, 1992 pp. 18–20). A mail survey of general practitioners (GPs) in 1991 found somatic anxiety and depression were increasing and job satisfaction decreasing (Sutherland & Cooper 1992). Overall the survey demonstrated increased stress, less job satisfaction and poorer mental health since 1987.

Little attention has been paid to senior hospital staff. In a British Medical Association survey of consultants, the highest morale was in A&E, although over half of the respondents showed evidence of poor morale (BMA, 1992 pp. 46–49). Common rotas of one in two worked for many years, combined with the unpredictable demands of an acute specialty, erode family life and social activities denying the consultant adequate time to relax.

The results of an international study of trainees in A&E medicine in the U.K., U.S.A. and Australia (Whitley *et al.*, 1991) showed that respondents from the United Kingdom reported significantly higher levels of stress than respondents from the United States.

METHODS

A mail survey of all consultants and senior registrars practising A&E medicine in the U.K. was conducted in late 1990. A total of 201 questionnaires were returned (72% response rate) representing 154 consultants (70.6%) and 47 senior registrars (77%).

The questionnaire established basic demographic information concerning the type of hospital (teaching or district general hospital), the numbers of staff (consultants, senior registrars, middle grade and senior house officers [SHOs]), and the total number of patient attendances per annum. In addition, age, seniority and on-call commitment in the specialty were established.

The questionnaire contained inventories to measure work-related stress (Revicki *et al.*, 1991), depressive symptomatology (Radloff 1977), and respondent evaluations of three aspects of the work environment: task and role clarity, work group functioning, and overall satisfaction with work.

The task and role clarity scale assesses the specificity with which responsibilities at work are defined for individuals, how well individuals believe they accomplish tasks and fill roles, and how much freedom they believe they have to do their jobs. The work group functioning scale measures the extent to which respondents regard their work groups as cohesive units characterized by mutual support and effective communication that allows the group to work together to meet group goals. The work satisfaction scale assesses respondent satisfaction with aspects of work such as remuneration, professional development, opportunities to make contributions and be recognized for them.

In addition to basic descriptive statistics, Pearson product-moment correlation coefficients were calculated to assess the relationships between selected pairs of variables (Table 1). Student's *t*-test and analysis of variance (ANOVA) were used to make specific comparisons of subgroups of respondents. Following significant ANOVAs, Scheffe's test was used to determine the significance of differences between pairs of means.

RESULTS

The demographic characteristics of the 201 respondents are presented in Table 2. The respondents were predominantly married, male consultants in their early

Table 1. Correlation coefficients

	WRSI	CES-D	Task clarity	Work group functioning	Work satisfaction
WRSI	1.00	0.65	-0.65	-0.42	-0.61
CES-D		1.00	-0.51	-0.36	-0.48
Task clarity			1.00	0.52	0.56
Work group functioning				1.00	0.59
Work satisfaction					1.00

Table 2. Demographic characteristics

	n*	Categorical variables		
		%		
Gender				
Men	177			88.1
Women	24			11.9
Marital Status				
Married	172			86.0
Not married	28			14.0
Job Status				
Consultant	154			76.6
Senior registrar	47			23.4
Hospital type				
Teaching	88			43.8
District general	113			56.2
Call Commitment				
1:1	55			28.6
1:2	91			47.4
1:3	41			21.4
1:4	5			2.6
Attendances per annum				
<35 000	27			13.5
35 001–50 000	73			36.5
50 001–65 000	47			23.5
>65 000	53			26.5
		Continuous Variables		
	n	x	sd	Range
Age	201	42.2	7.7	31–67
Years in Grade	191	6.5	5.4	0–23

* Totals <201 reflect incomplete responses.

forties, practicing in district general hospitals, and had on-call commitments of 1:1 or 1:2.

Descriptive statistics summarizing the scores for all respondents and for the subgroups created for specific comparisons on the stress, depression, and work environment scales are presented in Table 3. Given that scores on the Work Related Strain Inventory (WRSI) can range from 18–72, the mean scores do not indicate that either the total group of respondents or any subgroup were experiencing extreme levels of work-related stress and are similar to the levels reported by other groups of health care providers (Whitley *et al.*, 1991). Using a score of 16 on the CES-D as a criterion for identifying levels of depressive symptomatology that may be clinically significant (Radloff 1977), the respondents did not appear to be experiencing serious levels of depression. Finally, scores on the three work environment scales are all in the upper half of the potential score range, which indicates the respondents generally considered their tasks and roles to be clearly defined, their work groups to be supportive, efficient units, and their work satisfying.

Table 3. Descriptive statistics for the affective scales (mean \pm SD)

	WRSI	CES-D	Task clarity	Work group functioning	Satisfaction with work
All respondents	36.1 \pm 9.8	11.4 \pm 10.3	40.8 \pm 6.5	35.3 \pm 7.3	43.1 \pm 7
Job Status					
Consultants	36.8 \pm 10.0	11.5 \pm 10.7	40.6 \pm 6.6	36.6 \pm 6.9	43.3 \pm 8.0
Senior registrars	33.6 \pm 8.9	10.9 \pm 8.9	41.4 \pm 6.2	32.3 \pm 7.6	42.7 \pm 7.5
Age					
<45	36.7 \pm 9.5	12.2 \pm 10.6	39.8 \pm 6.3	34.0 \pm 7.3	41.9 \pm 7.6
\geq 45	34.7 \pm 10.5	9.4 \pm 9.5	43.1 \pm 6.3	38.5 \pm 6.0	46.1 \pm 7.8
A&E experience					
<5 years	35.1 \pm 9.0	11.9 \pm 10.7	40.4 \pm 6.2	33.5 \pm 7.8	42.0 \pm 7.4
5–10 years	36.8 \pm 10.4	12.1 \pm 11.1	40.5 \pm 6.7	35.9 \pm 6.8	43.0 \pm 8.8
>10 years	35.3 \pm 10.7	9.4 \pm 9.1	42.5 \pm 6.8	38.4 \pm 5.5	46.5 \pm 6.9
Hospital type					
Teaching	34.5 \pm 10.0	9.9 \pm 9.4	41.4 \pm 6.5	35.8 \pm 7.5	44.3 \pm 8.2
District general	37.3 \pm 9.5	12.5 \pm 10.9	40.3 \pm 6.4	35.0 \pm 7.0	42.2 \pm 7.5
Call Commitment					
1:1	36.6 \pm 9.7	10.3 \pm 9.3	39.3 \pm 6.1	34.8 \pm 7.3	41.4 \pm 7.7
1:2	36.2 \pm 10.6	12.6 \pm 11.9	41.1 \pm 7.1	36.3 \pm 7.3	43.6 \pm 8.1
1:3	34.5 \pm 8.9	8.8 \pm 6.3	42.6 \pm 5.5	34.4 \pm 7.0	44.3 \pm 7.7
1:4	38.8 \pm 8.9	14.2 \pm 9.9	36.6 \pm 5.7	34.2 \pm 4.0	41.4 \pm 5.7
Attendances/annum					
<35 000	38.4 \pm 9.5	12.4 \pm 10.8	40.3 \pm 6.4	34.2 \pm 7.3	40.0 \pm 7.9
35 001–50 000	35.0 \pm 8.7	11.3 \pm 9.9	40.8 \pm 6.5	35.9 \pm 6.6	43.1 \pm 6.5
50 001–65 000	36.4 \pm 10.8	11.0 \pm 11.0	40.3 \pm 7.1	35.1 \pm 7.9	43.7 \pm 9.2
>65 000	35.8 \pm 10.5	11.2 \pm 10.3	41.5 \pm 6.1	35.4 \pm 7.6	44.2 \pm 8.2

Pearson product moment correlation coefficients revealed a direct relationship between stress and depression ($r=0.65$) and inverse relationships between stress and task and role clarity ($r=-0.64$) and stress and work satisfaction ($r=-0.60$). Task and role clarity also was directly related to work group functioning ($r=0.52$) and to overall work satisfaction ($r=0.56$). Finally, work group functioning was directly related to overall work satisfaction ($r=0.59$).

The correlation coefficients presented in Table 3 are all in the expected direction and are statistically significant ($P=0.0001$). The correlation between WRSI and CES-D scores is similar to that obtained in other studies of health care providers. The importance of clearly defined tasks and roles and work group cohesiveness is shown clearly. There were no significant correlations between the numbers of various types of staff or the number of attendances per annum and scores on the WRSI, CES-D, or the three work environment scales.

With respect to the comparisons of sub groups using *t*-tests (Table 2), consultants and senior registrars differed only in that the former were more likely to view their work groups as cohesive, smoothly functioning units ($t=3.32$, d.f.=199, $P=0.0011$). Respondents older than 45 years also evaluated their work groups more favourably than younger respondents ($t=4.19$, d.f.=199, $P=0.0001$). In addition, older respondents perceived their tasks and roles to be significantly clearer ($t=-3.34$, d.f.=198, $P=0.0010$) and were significantly more satisfied with their work ($t=-3.57$, d.f.=199, $P=0.0005$).

ANOVA revealed significant differences among the respondents based on the number of years they had been practicing A&E medicine in their evaluations of the functioning of their work groups ($F=6.96$, $d.f.=2188$, $P=0.0012$) and their satisfaction with their work ($F=4.92$, $d.f.=2188$, $P=0.0082$). Scheffe's test revealed that respondents with more than 10 years of experience were significantly more likely to evaluate the functioning of their work groups more favourably and to be more satisfied with their work than respondents with 4 or fewer years experience. Scheffe's test did not reveal any significant differences in the mean scores of respondents with 5–10 years of experience and the other two subgroups on either scale.

DISCUSSION

Emergency medicine is unique because of the intensity of stressful factors placed upon practitioners and the long term consequences for practitioners have not been fully addressed. The unpredictability of workload, understaffing, inadequate funding, potentially difficult working relationships with patients, relatives and referring specialties, and the emotionally draining scenarios which develop with serious illness, injury and death, contribute additional stress.

The results of this survey clearly indicate the effects of characteristics of the work environment on work-related stress and depression. Respondents who perceived their tasks and roles to be defined clearly and their work groups to be cohesive, efficient units reported lower levels of stress and depression and were more satisfied with their work. Thus, although personality plays an important role in the A&E physician's ability to cope with stress, efforts to ensure that consultants and senior registrars have a clear picture of their roles and responsibilities and to develop and maintain effective, collegial work groups may be expected to result in reduced levels of stress and depression.

The lack of statistically significant correlation coefficients on the affective scales in this study for number of patient attendances, on call commitment and staffing number is surprising. The overall finding in this study that high levels of stress or depression were not reported probably reflects the personality of physicians who complete training in the specialty and their ability to develop coping strategies to deal with the stresses of A&E medicine. The prolonged training and competition tends to select out those unwilling or unable to cope with high degrees of stress.

Coping mechanisms to deal with long or short term stress have been described (Keller & Koenig 1991) and include the use of long term strategies such as exercise, drawing on experience, taking definite action and talking situations out with others. Short-term methods include seeing humour in the situation, cursing, daydreaming, crying, alcohol abuse, eating more and sleeping. Those physicians exhibiting signs of high levels of exhaustion tend to use avoidance tactics, i.e. short-term coping methods, to deal with stress. Doctors exhibiting signs of de-personalization make less frequent use of coping methods. The physicians with high personal accomplishments use approach tactics and long term coping methods.

The present *ad hoc* circumstances under which U.K. A&E doctors are allowed to

develop coping strategies without training or easily available support and counselling is unacceptable. Nowhere in training are doctors taught to recognize or deal with stress. Some avoidable pressures could be removed by good management and working practice. The British Medical Association encourages the development of management skills for senior registrars and consultants to minimize stress by aiding communications, improved management of time and people, and avoidance of overwork (BMA, 1992, pp. 58–62). Consultants must be able to recognize stress in themselves and other workers in the department. Doctors need support and accessible counselling geared to recognizing stress.

The effects in later career of prolonged stress at the levels demonstrated in this study are unknown but may become apparent as illness, absence from work or alcohol abuse. Less tangible results adversely affecting the quality of health care delivered may ensue, with apathy, inertia, and failure to maintain high standards of personal clinical performance.

For dissatisfied doctors who consider leaving the specialty, opportunities in the UK with comparable job security and financial reward are limited, adding to the pressures to cope. In the U.S.A., incentives are more readily available and disillusioned practitioners may become entrepreneurs, enter teaching, administration or work in less stressful, free standing emergency centres.

To minimize mid or late career attrition the character traits of successful emergency medicine practitioners could be identified to provide a proven personality profile for junior doctors considering a career in A&E. Analysis of the characteristics of those physicians reporting low levels of exhaustion and depersonalization combined with high levels of personal achievement has been recommended to identify those factors which result in successful practice (Keller & Koenig 1991).

CONCLUSION

This study found that in U.K. A&E consultants and senior registrars overall levels of stress and depression are not high. Senior staff experience higher levels of work satisfaction. The results probably reflect the *ad hoc* coping strategies adopted by a group of doctors who have already demonstrated appropriate personality characteristics by completing a prolonged and competitive training programme. To prevent mid or late career attrition, however, Accident and Emergency doctors should receive formal training in stress recognition and avoidance. Accessible counselling without stigma should be easily available. Senior A&E doctors have a role in detecting and managing stress amongst other staff in the department.

REFERENCES

- British Medical Association Board of Science and Education (1992) *Stress and the Medical Profession*, British Medical Association (London).
- Dwyer B., Weissberg M., Whitehead D. & Pines A. (1991) Surviving the 10-year ache: emergency

- practice burnout. *Emergency Medicine Reports* **12**, 1–8.
- Gallery M., Whitley T., Kionis L., Anzinger R. & Revicki D. (1992) A study of occupational stress and depression among emergency physicians. *Annals of Emergency Medicine* **20**, 58–64.
- Keller K. & Koenig W. (1991) Management of stress and prevention of burnout in emergency physicians. *Annals of Emergency Medicine* **18**, 42.
- Radloff L. S. (1977) The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement* **1**, 485–501.
- Revicki D. A., May J. H. & Whitley T. W. (1991) Reliability and validity of the work-related strain inventory among health professionals. *Behavioural Medicine* **17**, 111–120.
- Sutherland V. & Cooper C. (1992) Job stress, satisfaction and mental health among general practitioners before and after introduction of new contract. *British Medical Journal* **304**, 1545–1548.
- Whitley T., Allison J., Gallery M., Heyworth J., Cockington R., Gaudry P. & Revicki D. (1991) Work related stress and depression among physicians pursuing postgraduate training in emergency medicine: an international study. *Annals of Emergency Medicine* **20**, 992–996.