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JOB STRESS AMONG BRITISH GENERAL PRACTITIONERS: PREDICTORS OF JOB DISSATISFACTION AND MENTAL ILL-HEALTH

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SUMMARY

Questionnaires assessing levels of job satisfaction, mental well-being and sources of stress were distributed to a random sample of 850 general practitioners (GPs) in England. The final sample size was 414. Compared to a normative sample, male GPs exhibit significantly higher levels of anxiety, whereas female GPs compare favourably to the population norms. Job satisfaction levels among male and female GPs were significantly lower than when they were measured in 1987. Multivariate analysis revealed five major stressors that were predictive of high levels of job dissatisfaction and negative mental well-being; these were practice administration and demands of the job, interference with family and social life, routine medical work, interruptions and working environment. In addition, emotional involvement and type A behaviour were predictive of lack of mental well-being. It is concluded that there may be substantial benefit in providing training in management skills and introducing a stress management programme for GPs.

KEY WORDS—general practitioners; job stress; job dissatisfaction; mental ill-health

There has been a growing amount of published work on sources of stress among general practitioners (GPs) in the UK.[1–5] Studies on stress in GPs show that organizational aspects of the job are the major stressors rather than patient care itself.[2,6] This view is supported by teacher stress research, which shows that the organization context of teaching is more stressful than the actual job itself.[7–10] The 1990 contract for GPs was the most radical change in general practice for many years and caused widespread dissatisfaction among members of the profession.[11–13] Since 1990 very little work has been done to investigate the sources of stress among GPs and the effects of these changes on the doctors' health. What is required is more up-to-date research that examines the specific nature of pressures and the consequences of these as measured by stress outcomes.

The National Health Service and Community Care Act in 1990 has created a new role for GPs as purchasers of care for their patients. GPs are now expected to work in a multidisciplinary team. They are having to be more accountable for the way in which they spend taxpayers' money. Medicine has become more businesslike and GPs may have to face stress and strain in balancing the demands of these new roles.[14] It is believed by some authors[15] that the profession no longer has the same respect and prestige as in the past and that the potential for satisfaction may have been reduced.

Karasek's[16] job strain model predicts that job strain results from the combination of low job decision latitudes (constraints in decision-making or less control over the task) and heavy job demands. This same combination is also associated with job dissatisfaction. Also recently Karasek's model has been tested among healthy men by Landbergis *et al.*,[17] who found that individuals in

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the strain jobs (low decision latitude, low autonomy, high control) had the highest level of job dissatisfaction. The high demand characteristic of general practice is well documented: time pressure, problems of practice administration, heavy workload, patient expectations, emergencies and home/work conflict.[1–5] The accelerated changes in general practice in 1990 were beyond doctors' control due to lack of consultation with ordinary members of the profession.[18] This has resulted in considerable tension among GPs.

Researchers in other occupational areas have found that increased stress levels may lead to job dissatisfaction.[16] However, the relationship between job satisfaction and stress is less clear among professionals in high status occupations. Intrinsic job dissatisfaction may be associated with an increased risk of coronary heart disease.[19] Studies on doctors that have included measures of both job stress and job satisfaction have found them to be inversely related.[3,20,21] The aim of many of these studies has been to identify occupational sources of stress and to indicate how job stress affects levels of job satisfaction. Little is known about how job stress, personality and other demographic factors affect job satisfaction and mental health.

Mortality and morbidity data in medical practitioners indicate that they may be at considerable risk of psychosomatic illness and other manifestations related to stress.[3,22,23] Mortality data for cirrhosis of the liver show higher rates in male doctors than in the general male population.[24] A recent study[25] revealed that GPs were more likely to be depressed and show suicidal thinking than were senior health service managers and hospital consultants.

There seem to be some individual differences among doctors in the response to occupational stressors and how they cope with the job. Scheiber[26] found that both personality and stress factors are predictive of leaving residency training. It was found by other researchers that individual differences in stress response are related to demographic variables. For example, Linn *et al.*[27] found an inverse relationship between age and stress and a positive relationship of age and job satisfaction. It is possible that other individual differences, such as experience, type of practice (solo vs. group), type of job (trainee vs. principal), certain personality traits, practice location (urban vs. rural) and gender, may be related to occupational stress, job satisfaction and mental health.

This investigation was intended to identify the sources of stress in GPs that are predictive of job dissatisfaction and mental ill-health. Given the relationship between type A behaviour and several health outcomes[28] and the extent to which type A behaviour has been used in occupational stress research as a measure of personality predisposition to stress, a measure of type A was included in the study.

This study is important for:

1. Professional training
2. Patient care
3. Continuing in-service education
4. Reducing stress and promoting satisfaction

METHOD

Sample

Seven family health services authorities (FHSAs), including both urban and rural practices from different geographical regions of England were selected. Each FHSA produced a random sample of 40 per cent of the GPs on its list, yielding a total of 850 GPs. The questionnaire packs were sent to the FHSAs in December 1992.

Each of the GPs identified was sent an anonymous questionnaire by the FHSA and asked to return it in a prepaid envelope. We were unable to check any differences between responders and non-responders and to assess test–retest reliability of the job stress questionnaire. Anonymity, however, was considered essential to protect the identity of the GPs, to ensure honesty in responding and to obtain a reasonable response rate. A total of 414 questionnaires were returned (response rate 48.71 per cent) of which 380 (44.71%) were sufficiently complete for statistical analysis. The response rate is comparable with that of 48.2 per cent obtained in the 1987 survey[3] (in which 1817 (45.43 per cent) were completed for analysis) and also comparable with similar occupational stress studies.[28] Of the 380 GPs, 262 (68.9 per cent) were male and 117 (30.88 per cent) female (one questionnaire had a missing answer). This proportion of females is close to the 26.7 per cent among all GPs in England and Wales in 1991.[29] The age distribution was such that 25.5 per cent were aged 25–34 years, 40.5 per cent 35–44 years, 22.4 per cent 45–54 years, 10.8 per cent 55–64 years and 0.5 per cent 65 years or over.

A total of 303 (79.7 per cent) were married, 335 (88.2 per cent) were in group practices, 373

(98.2 per cent) were principals, 211 (55.5 per cent) were practising in urban areas and 51 (13.5 per cent) had received their first degree overseas. More than half the respondents (67.1 per cent) had experience in general practice from under 10 and up to 15 years.

Variables measured

The questionnaires incorporated measures on the following variables.

Demographic factors. Data were obtained on 13 demographic characteristics: gender, age, marital status, job title (principal vs trainee), practice type (group vs solo practice), full- vs part-time work, qualified in the United Kingdom vs overseas, years spent in general practice, practice location (urban vs rural), outside commitments (such as hospital sessions), list size, weekly number of home visits, and whether there were other attached staff (practice manager, practice nurse, counsellor).

Job satisfaction. An abbreviated version of the job satisfaction scale of Warr *et al.*[30] was used to measure levels of job satisfaction. Ten of the original 15 were used, as the other five are not appropriate for GPs (referring to such matters as job security or immediate boss). Each item is rated on a seven-point scale from 1 (extremely dissatisfied) to 7 (extremely satisfied). The examples of items used were: 'freedom to choose your own method of working', 'recognition you get for your good work', 'opportunity to use your ability', etc. Reliability and validity data have been reported.[30] For this sample, a Cronbach alpha coefficient of 0.84 was obtained for the total job satisfaction scale.

Mental health. Three of the subscales of the Crown–Crisp Experiential Index[31] were used to measure the psychological well-being of the GPs. The subscales were: free-floating anxiety, depression and somatic anxiety. Each of the subscales is composed of eight items (scored 0, 1 or 2), giving a maximum subscale score of 16, and a low score is indicative of good health. This inventory yields scores ranging from 0 to 48. Reliability and validity data have been reported.[24] For this study, reliability values (Cronbach alpha coefficient) were as follows: overall mental ill-health, alpha = 0.85; free-floating anxiety, alpha = 0.75; somatic anxiety, alpha = 0.58; depression, alpha = 0.64.

Drinking and smoking habit. This consisted of two items, one measuring alcohol consumption and the other the number of cigarettes smoked daily. For drinking, the GPs were asked to indicate whether they were teetotal, had an occasional drink, several drinks a week, one or two drinks every day, three to six drinks daily, more than six drinks daily. Daily cigarette consumption was none, 1–10, 11–20, 21–30, 31–40, 40+. These scales were previously employed.[3]

Type A behaviour. The Bortner type A questionnaire[32] was used as an indicator of stress-prone personality. Type A pattern behaviour has emerged as a good predictor of cardiovascular disease[33,34] and other stress-related illnesses. This behaviour pattern may be characterized by extremes of competitiveness, aggressiveness, haste, impatience, restlessness and feelings of being under pressure of time and under the challenge of responsibility. Samples of some of the items which assess different aspects of this behaviour pattern are: never late vs casual about appointments, competitive vs not competitive, always rushed vs never feel rushed. This questionnaire has 14 items, each rated on an 11 point scale. Scores range from 14 to 154, with higher scores reflecting more type A behaviour. Reliability and validity data have been described.[32] The alpha coefficient obtained for this scale was 0.75.

Ways of coping checklist. A shortened version of Folkman and Lazarus's ways of coping checklist, previously used by Hingley and Cooper,[35] was included. This scale was also used in our previous study.[4] In this checklist, respondents were asked to recall a recent stressful situation at work and to indicate on a scale of 1 to 5 whether they used each of twelve particular strategies (such as 'kept my feelings to myself', 'blamed myself', 'talked to someone about how I was feeling', etc) to help them cope. The alpha coefficient obtained for this scale was 0.05.

Job stress questionnaire. A list of potential sources of stress was developed from semi-structured interviews with 42 GPs in 1987 and 49 GPs in 1992. The interviews lasted between 30 and 50 minutes. The doctors were asked to identify potential causes of stress, both at work and at home and socially, as suggested by Cooper and Marshall.[36] The resultant interview data were found to be a rich source of information in terms of revealing the pressures experienced by GPs. Content analysis of the responses produced 43 items. Each was scored on a five-point Likert-type scale where 1 denotes 'no stress at all', 3 represents 'source of moderate stress' and 5 is 'source

Table 1—Mean scores on job satisfaction (high score = high satisfaction), mental health (high score = poor mental health), drinking behaviour and type A behaviour by sex of respondents (comparison between 1987 and 1993 data)

	GPs 1993			GPs 1987			
	N	Mean	SD	*N*	Mean	SD	*t*
Job satisfaction							
Males	262	44.14	10.35	1433	50.30	8.23	9.20***
Females	116	44.97	7.98	335	52.80	7.36	9.27***
Mental health							
Males	260	10.10	7.87	1401	8.96	6.68	2.20*
Females	117	12.79	7.27	316	10.80	6.51	2.60**
Free-floating anxiety							
Males	260	3.93	3.49	1439	3.70	3.17	1.07
Females	117	5.45	3.53	335	4.84	3.35	1.67
Somatic anxiety							
Males	260	2.71	2.60	1426	2.36	2.18	2.29*
Females	117	3.14	2.33	331	2.65	2.24	2.01*
Depression							
Males	260	3.46	2.91	1431	2.92	2.65	2.89**
Females	117	4.20	2.85	335	3.37	2.40	3.07**
Drinking behaviour.							
Males	262	2.84	1.01	1467	1.89	1.02	14.00***
Females	117	2.70	0.84	343	1.70	0.91	10.86***
Type A behaviour.							
Males	261	94.55	17.73	1450	93.09	16.7	1.29
Females	117	96.65	14.66	338	92.39	15.79	2.66**

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

of extreme stress'. This self-reporting instrument for measuring stress has strong content validity. The alpha coefficient obtained for this scale was 0.94.

RESULTS

Variables measured

With the exception of job stress and coping strategies, the mean scores on the variables studied are shown, subdivided according to sex, in Table 1, which also includes, for comparison purposes, 1987 data on the job satisfaction, mental health, drinking habit and type A behaviour scales.

Table 1 shows that both male and female GPs were significantly less satisfied in their job in 1993 than in 1987 ($p < 0.001$). The mental health of the male ($p < 0.05$) and female ($p < 0.01$) GPs was significantly poorer in 1993 than in 1987. On the depression and somatic scales, both male and female GPs had higher scores in 1993 than in 1987, but there was no significant difference on the free-floating anxiety scale between 1993 and 1987 for both male and female GPs. Both male and female GPs were drinking more in 1993 than they were in 1987 ($p < 0.001$). Mean scores on type A behaviour for female GPs were significantly higher in 1993 than in 1987 ($p < 0.01$) but there was no significant difference between 1993 and 1987 on the type A scale for male GPs.

Table 2 shows the mean scores for Crown–Crisp Experiential Index subscales and normative data. The scores on the mental health subscales, where higher scores indicate 'poorer health', show that the male GPs score significantly higher on the anxiety scale than the normative group[31] ($p < 0.001$), whereas the observed scores for the female GPs were similar to the population norm for females. On the somatic anxiety scale, GPs of both sexes scored significantly lower than the normative respondents, indicating fewer psychosomatic complaints. There was no significant difference on the depression scale between the male GPs and the normative male population. On the other hand, level of depression for female GPs

Table 2—Crown–Crisp Experiential Index subscales (high score = poor mental health): gender and normative comparisons[31]

	GPs 1993			Normative data[31]			
	N	Mean	SD	*N*	Mean	SD	*t*
Free-floating anxiety							
Males	260	3.93	3.49	340	2.80	2.80	4.27**
Females	117	5.45	3.53	415	5.40	3.50	1.36
Combined	377	4.40	3.57				
Somatic anxiety							
Males	260	2.71	2.56	340	4.30	3.00	6.99**
Females	117	3.14	2.33	415	5.70	3.30	9.50**
Combined	377	2.84	2.50				
Depression							
Males	260	3.46	2.91	340	3.20	2.30	1.19
Females	117	4.20	2.85	415	4.40	2.50	2.37*
Combined	377	3.69	2.91				

*$p < 0.05$; **$p < 0.001$.

was significantly lower than the female population norm ($p < 0.05$).

Sources of job stress

Respondents indicated the level of stress caused by each of 43 potential sources of stress, 3 representing 'moderate stress' and 5 (the maximum) 'extreme stress'. The five sources of stress receiving the highest mean ratings were: emergency calls during surgery hours (mean = 3.93, SD = 1.04), night calls (mean = 3.83, sd = 1.06), dealing with problem patients (mean = 3.64, SD = 0.96), time pressure (mean = 3.61, SD = 1.03) and coping with phone calls during the night and early morning (mean = 3.57, SD = 1.21). When the data were analysed separately according to gender, the same five stressors had highest mean ratings for men and women GPs.

Responses on all 43 sources of stress items were subjected to factor analysis to assess which items were intercorrelated and to establish their internal reliability. A principal factor analysis (with iteration) was performed to identify groups of variables which accounted for the observed correlation in the set of data. A Varimax rotation was performed to ensure that as far as possible each variable loaded on only one factor.[37] The analysis revealed that six factors, covering 40 of the items, accounted for 50.7 per cent of the variance. Table 3 lists the items grouped statistically into six factors, with the main factor loading of each item. The naming of factors is a subjective procedure, but inspection of the items loading on each factor suggests they can be named as: 1, practice administration and job demands (alpha = 0.88); 2, interruptions (alpha = 0.83); 3, working environment (alpha = 0.68); 4, routine medical work (alpha = 0.71); 5, emotional involvement (alpha = 0.72); and 6, work/home interface and social life (alpha = 0.83). Factor scores were calculated for each individual GP for each factor and were later used in multiple regression analysis.

Ways of coping checklist

A similar factor analysis was performed on the strategies of coping scores and revealed three underlying factors accounting for 47.8 per cent of the variance. The factors were labelled: 'support seeking', 'regretting–denying' and 'annoying'. The loading of each item on the factor with which it was mainly associated is shown in Table 4. This outcome is similar to that obtained by Hingley and Cooper,[35] who used the same subset of items on a sample of nurse managers. However, because of the low reliability of this scale, this was not employed in regression analysis.

Predictors of job satisfaction

Separate stepwise multiple regression analyses were performed to analyse the relation between each of the dependent variables (job satisfaction, mental health and drinking measures) and the independent variables (demographic factors, job stressor factors and type A behaviour). This method of analysis relates independent and

Table 3—Factor analysis of responses to sources of stress items

Stressors	Loadings
Factor 1: Practice administration and job demands (29 per cent of variance)	
Practice administration	0.68
Hospital referrals	0.63
Taking work home	0.65
Overall increased demands by patients	0.64
Communication with staff due to staff increase	0.61
Coping with numerous journals	0.58
Work overload due to health promotion clinics	0.57
New contract	0.51
Time pressure	0.48
Unrealistically high expectations by patients of your role	0.47
Unrealistically high expectations by partners of your role	0.45
Arranging admissions	0.45
Increased demand by patients and relatives for second opinions from hospital specialists	0.40
Factor 2: Interruptions (5.4 per cent of variance)	
Coping with phone calls during night and early morning	0.73
Interruption of family life by telephone	0.64
24 hour responsibility for lives of patients	0.63
Night calls	0.61
Finding a locum	0.59
Fear of assault during night visits	0.58
Remaining alert when on call	0.47
Partner on holiday	0.41
Factor 3: Working environment (5.3 per cent of variance)	
Conflict with partners in group practice	0.62
Working environment (lack of facilities, surgery set-up)	0.58
Target achievement	0.56
Taking several samples in short time	0.48
Driving	0.45
Examining patients of opposite sex	0.43
Factor 4: Routine medical work (3.8 per cent of variance)	
Home visits	0.69
Conducting surgery	0.67
Problem patients	0.61
Emergency calls during surgery	0.47
Dealing with terminally ill	0.44
Factor 5: Emotional involvement (3.7 per cent of variance)	
Dealing with relatives as patients	0.75
Dealing with friends as patients	0.69
Worrying about patient complaints	0.50
Adverse press publicity	0.46
Factor 6: Work/home interface and social life (3.5 per cent of variance)	
Dividing time between spouse and patients	0.74
Demands of job on family life	0.73
Demands of job on social life	0.73
Lack of emotional support at home	0.44

dependent variables in a manner which takes mathematical intercorrelation into account. In addition, this statistical technique achieves the best linear prediction equation between an independent variable and series of dependent variables. In this study, interaction between dependent variables was not considered. In attempting to isolate the independent variables which would yield the optimal prediction equation, the cutoff point was determined by two statistical criteria: first, that the overall F ratio for the equation was significant; second, that the partial regression coefficient for the individual independent variable being added was at a statistically significant level.[38] Below this point the coefficient is insignificant and the amount of variance contributed by each additional variable (shown by r^2 change) is very small.

The outcome of the multiple regression analysis with job satisfaction as the dependent variable and job stressors, type A behaviour and demographic

Table 4—Factor analysis of responses to coping items

Stressors	Loadings
Factor 1: 'Support-seeking' (20.4% of variance)	
Talked to someone about how I was feeling	0.75
Let my feelings out in some way	0.68
Talked to someone who could do something about the problem	0.67
Kept my feelings to myself.	−0.73
Factor 2: 'Regretting–denying' (17.5% of variance)	
Didn't let it get to me; refused to think about it too much	0.70
Blamed myself	0.66
Went over the problem again and again	0.60
Went on as if nothing had happened	0.52
Wished I could have changed what happened	0.50
Factor 3: 'Annoying' (9.9% of variance)	
Got mad at the people or things which caused the problem	0.85
Just concentrated on what I had to do next	−0.40

Table 5—Results of multiple regression analysis of demographic factors, type A behaviour and job stressors against job satisfaction

Independent variables	*B*	SE	r^2
Practice administration and job demands	−3.19	0.51	0.11
Work/home interface and social life	−2.51	0.49	0.17
Routine medical work	−2.39	0.47	0.24
Working environment	−2.15	0.46	0.28
Interruptions	−1.79	0.45	0.32

Note: Overall $F = 30.17$, $df = 5, 324$, $p < 0.001$

factors as the independent variables is shown in Table 5. Only those independent variables exceeding the criteria noted above are listed.

Five job stressor factors were negatively predictive of high levels of job satisfaction among GPs; together they accounted for 32 per cent of the variance. The factors predictive of job dissatisfaction included practice administration and job demands, work/home interface and social life, routine medical work, working environment and interruptions. When we broke the analysis down for male and female GPs and carried out regression analysis for each of these groups separately, two of the above factors (namely, practice administration and job demands, and interruptions) emerged in the equation for male GPs. Although practice administration and job demands was one of the significant factors for female GPs, interruption was not a significant factor. In addition, women GPs who reported high stress due to emotional involvement (for example, dealing with friends and relatives as patients, worrying about patients' complaints, adverse publicity in the press) had more dissatisfaction in their job in general.

Predictors of mental health

The scores on the three subscales of the mental health measure (the Crown–Crisp Experiential Index) were summed to provide a total score for each respondent. This formed the dependent variable in a second multiple regression analysis, with job stressors, type A behaviour and demographic factors as the independent variables. Type A behaviour and six job stressor factors were significantly predictive of high levels of mental ill-health (Table 6).

The GPs most 'at risk' in relation to mental ill-health symptoms are those who at work are subjected to high pressure associated with demands on the job and practice administration and routine medical work. In addition, unpredictable interruptions, work/home interface and social life, emotional involvement and working environment were predictive of lack of mental well-being. Given the demographic and type A behaviour variables in the equation, evidently the GPs most at risk of the six job stress factors were those who

Table 6—Results of multiple regression analysis of demographic factors, type A behaviour and job stressors against total mental health index, free-floating anxiety, somatic anxiety and depression

Variables	*B*	SE	r^2
Mental health			
Practice administration and job demands	3.44	0.39	0.19
Type A	0.11	0.02	0.24
Work/home interface and social life	1.41	0.38	0.27
Emotional involvement	1.32	0.37	0.30
Routine medical work	1.34	0.37	0.33
Interruptions	1.29	0.37	0.35
Working environment	1.24	0.35	0.38
Overall $F = 27.82$, $df = 7, 321$, $p < 0.001$			
Free-floating anxiety			
Practice administration and job demands	1.30	0.18	0.13
Type A	0.06	0.01	0.20
Emotional involvement	0.59	0.18	0.22
Sex	1.22	0.38	0.25
Routine medical work	4.88	0.17	0.27
Overall $F = 23.37$, $df = 5, 323$, $p < 0.001$			
Depression			
Practice administration and job demands	1.17	0.15	0.16
Work/home interface and social life	0.76	0.14	0.22
Working environment	0.60	0.14	0.26
Emotional involvement	0.54	0.13	0.30
Routine medical work	0.47	0.13	0.32
Interruptions	0.47	0.13	0.35
Overall $F = 28.76$, $df = 6, 322$, $p < 0.001$			
Somatic anxiety			
Practice administration and job demands	0.98	0.13	0.15
Routine medical work	0.52	0.13	0.19
Interruptions	0.44	0.13	0.22
Work/home interface and social life	0.39	0.12	0.24
Overall $F = 26.15$, $df = 4,324$, $p < 0.001$			

reflected a type A pattern of behaviour in their lifestyle. Together these seven variables explained 38 per cent of the variance. When we broke the analysis down by males and females the separate regression produced the same two factors (practice administration and job demands, and working environment) as significant predictors of high levels of negative mental well-being for the male and female sample.

In dealing with mental health subscales, it was found that four variables significantly predict anxiety in GPs. As was the case for overall mental health, practice administration and job demands, emotional involvement and routine medical work were the important predictors of anxiety. Other predictors included gender and type A coronary-prone behaviour (a high type A behaviour pattern was associated with high levels of anxiety) explaining 27 per cent of the variance. Predictor variables for depression were all six stress factors. GPs with depression seem to be troubled by practice administration and job demands, work/home interface and social life (for example, dividing time between spouse and patients, demands of the job on family and social life, etc), interruptions, routine medical work, emotional involvement and working environment. Together, these six variables explained 35 per cent of the variance. As in the case of anxiety and depression the same two stress factors, ie practice administration and job demands and routine medical work, emerged as the predictors of somatic anxiety for the GPs. In addition, interruptions and work/home conflict and social life emerged as two significant predictors. Together these four variables explained 24 per cent of the variance. When we broke down the analysis by men and women, similar stress variables were significant predictors of anxiety, depression and somatic anxiety for both men and women GPs; however, the relative importance of each factor differed. Type A behaviour was an important predictor of anxiety for male GPs. For women, emotional involvement was an important predictor of somatic anxiety.

Predictors of health behaviour

A total of 24 (6.3 per cent) of the GPs reported that they were teetotallers, 128 (33.7 per cent) had an occasional drink, 150 (39.5 per cent) had several drinks a week, 60 (15.5 per cent) had one or two drinks every day, 16 (4.2 per cent) had three to six drinks daily and two (0.5 per cent) had more than six drinks daily. These are probably conservative estimates, since individuals tend to underreport their drinking habits.[3] Of the 380 respondents, 352 (92.6 per cent) of the GPs did not smoke cigarettes, 15 (3 per cent) smoked 1–10 a day, 10 (2.6 per cent) smoked 11 to 20 a day, and only three (0.8 per cent) smoked over 20 cigarettes a day.

The reported low rate of smoking provided too few data to relate smoking behaviour to the other variables. Therefore, stepwise multiple regression analysis of job stressors, type A behaviour and demographic factors was carried out against the degree of drinking behaviour only. Two variables exceeded the statistical criteria described earlier and predicted drinking behaviour. Alcohol consumption was related to practice type (solo vs group). This was particularly so for female GPs. The total amount of variance for both male and female equations (r^2 between 3 and 5 per cent) was very small, and no firm conclusions could be drawn.

DISCUSSION

The study reveals that male GPs exhibit a poorer level of mental health, in terms of anxiety, than a British normative male population. Female GPs, on the other hand, reported remarkable mental well-being, mental health scores being significantly below the normative population. On measures of depression there was no significant difference between the male GPs and the normative population. Levels of somatic anxiety remained significantly lower than in the normative population for both male and female GPs. In addition, our results show a decrease in satisfaction level and increase in depression and somatic anxiety in 1993 compared with 1987.[3] The findings for anxiety are of some concern for some GPs. Other authors have also found that GPs reported depression and anxiety frequently as problem areas.[39] Female GPs showed higher scores on the type A behaviour scale in this survey than in 1987. It may be that female GPs are reacting to the change in a different way. Surely, this is an area which requires further research. It was found that male and female GPs drank more in 1993 than in 1987. This maladaptive practice is a cause for concern. The items in the sources of job stress inventory were unique to GPs, designed specifically for this study, therefore normative data were not available for comparison purposes.

The most important aspect of this study was to identify the sources of job stress among GPs

associated with the negative manifestations of stress. The study reveals that the GPs' negative mental well-being and job dissatisfaction are predicted by the same five stress factors, those we have labelled: practice administration and job demands (for example, hospital referral, new contract, work overload, increased demands by patients), interruptions, work/home interface and social life, working environment and routine medical work. In addition, emotional involvement and type A behaviour were associated with negative mental well-being. It seems that the day-to-day pressure of practice administration and demands from the patients are the main sources of dissatisfaction with general practice for the GPs. This is consistent with findings from a previous study of job satisfaction among doctors.[3] However, female GPs were more dissatisfied with the emotional aspects of the job (for example, dealing with friends and relatives as patients, worrying about patients' complaints, adverse publicity in the press), whereas male GPs were affected more by interruptions on the job (for example, coping with phone calls at night and early morning, 24-hour responsibility, night calls, etc). In addition, type A behaviour was predictive of anxiety for male GPs. It seems that the male GPs with type A personality who have high demands from work (for example, practice administration, work overload, new contract, increased demands from patients, time pressure) are mostly anxious individuals. This is consistent with the finding from other studies[40] that there is a strong correlation between workload and anxiety in type A individuals in varying occupations.

Another finding was that the GPs who drank most alcohol worked in group practices and were less interrupted. However, the low r^2 values suggest that there are other factors, such as social support, not assessed in this study, influencing the drinking behaviour of GPs. This is an area which needs further investigation.

The findings suggest that the main sources of stress are job demands and practice administration, in particular administrative workload and increased demands by patients. The 1990 contract has considerably increased administrative pressures[15] on GPs. GPs will have to acquire accountancy and administrative skills to cope with the new demands. The GPs are unhappy with the 1990 contractual changes, mainly the way the changes were introduced. The pace and extent of change was seen to be a major source of stress for the GPs. Throughout interviews, and in comments made on the questionnaire, GPs expressed concern that they are expected to be experts in management skills, but with the accelerated change they often feel uncertain with what is going on.

The job demand control model proposed by Karasek[16] indicates that workers exposed to high levels of demand are more able to cope with the sources of stress if they perceive they have a high degree of decision-making latitude and autonomy in the job. The doctors reported that they no longer felt in control of events that affected their working practice because there was no consultation before the changes were made.[18] The findings highlight the importance of GPs having control over their work environment, status in their jobs and recognition from others for work well done.

The findings have important consequences for what can be done about GP stress. They imply that organizational issues are influential in determining the satisfaction that GPs derive from their work. Resistance to change can be reduced when an environment of trust and shared commitment is encouraged. It is essential to involve GPs in making decisions which affect them as ownership of the problem and the potential solution is vital. New and innovative ideas, it is suggested, should be thoroughly tested and objectively validated before being imposed. In order to successfully implement change, there needs to be adequate backing in terms of resources to ensure smooth running and changeover. Also, Myerson[41,42] suggests some strategies for coping with the new changes in general practice. These include reorganization of the practice environment, partnership arrangements, sharing problems with partners and staff, discussing problem cases with peer group and good working relationship with FHSAs.

GPs do not feel that there is sufficient training for them to do the job that is now expected of them.[4] The issue of stress management could be introduced as a continuous assessment approach to self-development and management. GPs and other primary care professionals are in need of more effective people management skill and organizational skill development. There needs to be a greater understanding and communication as to what the differing roles of those in primary care professions actually encompass. Due to the great many changes that have taken place there is a lack of clarity and understanding. Not only do the GPs therefore need training to deal with their added responsibility, but so too do other members of the primary care team, so that they can adjust to their changing roles.

Training for doctors could be provided to those wishing to enter into general practice during their medical training years and be continued during their general practice career, so that they can cope better with the stresses of this work.

There is a need to consider how these sources of stress could be reduced. It is possible that job demands could be accommodated in a realistic time management plan. Administrative workload might be reduced by delegating to a trained practice manager[4] and reducing unnecessary administration.[43] Some authors have pointed out that removing part of the factual load from the undergraduate curriculum[44] could allow the inclusion of topics such as communication skills, team work, interaction with technology, audit and management.

Patients' expectations have increased many times over, and for some their 'wants' are more than their 'needs'. It is quite possible that the patients' charter may have empowered patients excessively to the detriment of the doctor–patient relationship. GPs could consider initiating patient participation groups where the patients learn how to share responsibility on health matters. They could become acquainted with the GP's work pattern, workload and job demands. The expectations of patients could be made more realistic by increasing their understanding through discussion between doctors and patients. The patient participation group movement has been in existence for several years in some areas of England and is perceived as important;[45] other branches need to be encouraged and helped. The degree to which group members are representative of patients as a whole is questionable. Nevertheless, some authors[45] have given suggestions as to how to form a genuinely representative patient participation group. This may take time to implement. Also appropriate stress management strategies should be developed targeted at GPs to reduce or eliminate stress. For example, the NHS or FHSAs could take the initiative in consultation with those working in general practice to design and implement appropriate stress management strategies. There may be substantial benefit in providing a counselling service for GPs. Support groups and peer counselling should be encouraged and formalized.

Questionnaire studies are always open to criticism on the grounds that the questionnaire is a crude instrument and that incomplete return rates mean that one is always left wondering about the characteristics of those who did not respond. Another limitation of the study is that the data collected were self-reported and the respondents might have attempted to provide socially desirable responses. However, if the results were distorted a global distortion would have been observed rather than a selective one.

Future research needs to address the impact of other life stressors, physical health and personality indices, as well as obtaining more detailed information on coping strategies used against particular sources of stress. The current study presented a cross-sectional picture of the stress–mental health and stress–job dissatisfaction links. Nevertheless, psychological and physiological illnesses are largely evolutionary in nature, and greater emphasis on longitudinal studies is now needed to understand clearly the processes involved.

Also further study is needed to find out how GPs' psychological well-being affects their interactions with their patients by monitoring the effects of stress. Previous work has found that low job satisfaction among GPs is associated with prescribing inappropriate drugs.[46] It remains to be seen whether a similar prescribing pattern is observed now, with the rapid changes in the NHS.

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