

RESEARCH

Stress and its causes in UK gastroenterologists: results of a national survey by the British Society of Gastroenterology

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ABSTRACT

Aim Evaluation of stress and its causes in UK gastroenterologists,

Design Questionnaire emailed to all 1932 medical members of the British Society of Gastroenterology.

Results Of 567 respondents (29%), 107 (20%) graded their stress level as 4 or 5 out of 5. Stress levels correlated inversely with self-reported happiness levels ($r=-0.60$; $p<0.001$) and with hours slept per night ($r=-0.23$; $p<0.01$) and correlated directly with % time off-duty thinking about work ($r=0.46$; $p<0.001$) and with proportion of nights with broken sleep ($r=0.30$; $p<0.01$). Due to stress over the past year, 21% of respondents reported one of the following: consulting their general practitioner (7%), attending occupational health (5%), taking planned time off (7%), taking anxiolytics/antidepressants (6%) and considering suicide (5.5%). These respondents had higher stress and lower happiness levels than the remainder. Stress levels were higher in women and in those working full time but had no other demographic associations. The main causes of stress were excessive clinical work (ranked highest by 47% and most commonly patient-related administration), working conditions beyond control (ranked highest by 15% and most commonly inadequate information technology systems, workspace and secretarial staff) and conflict (ranked highest by 9%). Of eight potential factors, happiness with work showed the closest associations with overall happiness (positive) and overall stress (negative) levels. Talking to someone at work about stress was ranked difficult or impossible by 35%. The highest ranked suggested solutions were relief from some duties and mentoring.

Conclusions Stress is common and has objective correlates in UK gastroenterologists. The main cause is excessive workload.

INTRODUCTION

Medicine is a demanding profession, requiring high standards of competency and behaviour, and involving responsibility for patients with sometimes life-threatening conditions. Doctors are responsible for meeting standards of healthcare delivery, increasingly defined centrally. Demand for healthcare is increasing and resources to meet it remain inadequate. Other pressures include loss of autonomy and increased scrutiny, with the underlying threat of legal sanction.¹ Unsurprisingly, therefore, stress and 'burnout' (emotional exhaustion, depersonalisation and poor self-esteem) are found in 10%–44% of hospital doctors,^{2–8} more frequently than in the general population⁸

Gastroenterology illustrates all these challenges, involving as it does (1) endoscopy, demand for which and required standards for which continually increase, (2) unscheduled work, sometimes including commitment to multiple on-call rotas, and (3) patients dying at a young age. However, there is limited information on stress in UK gastroenterologists. A survey³ conducted in 1993 on 241 members of the British Society of Gastroenterology (BSG), found emotional exhaustion in 31% and psychiatric morbidity in 26%. The main drivers were overwork, poor management and inadequate resources.

While the number of gastroenterologists in the UK has increased 4.1-fold between 1993 and 2016,⁹ demand for services has

also increased. Further increases in numbers are needed but are limited by financial resources and increasingly by failure to recruit.

To inform a symposium at its 2017 Annual Meeting on ‘Stress in Gastroenterologists’, the BSG Clinical Services and Standards Committee conducted a survey on stress and its drivers among BSG members in early 2017. Rather than use an established generic measure such as the Maslach Burnout Inventory,¹⁰ we elected to construct a bespoke questionnaire, designed not only to assess severity of stress but also its causes and potential solutions. We report here the results of this survey.

METHODS

A 64-item SurveyMonkey Questionnaire was emailed by the BSG Office to all 1932 of its medically qualified members on 27 February 2017. The questions referred to the previous 12 months and were in four sections.

(a) Demography and working pattern: (see [table 1](#)) Also, number of consultants in and population served by department.

(b) Indices of emotional health: (1) Stress severity (graded 0–5), happiness level (graded 1–5), hours slept per night, proportion of nights with broken sleep, proportion of time off-duty thinking about work (1 (never) to 5 (incessantly)). These measures were not prevalidated. (2) Behavioural indices of stress and effects of stress at work ([table 2](#)).

(c) Factors associated with morale: Respondents were asked to grade their degree of happiness (5=very happy, 1=very unhappy) with eight factors ([table 3](#)). These had been identified in a Royal College of Physicians-led review (¹¹and references) as being relevant to doctors’ morale.

Respondents (excluding those who felt under no stress) were also asked to rank eight parameters ([table 4](#)) in order of importance as a cause of stress: (7=most to 0=least). A mean ranking score was derived for each parameter. Further questions sought more detail regarding these parameters.

(d) Potential solutions: Respondents were asked to rank, by importance, six ways of alleviating stress ([table 5](#)).

Preplanned reminders were emailed to the same 1932 members in mid-March and mid-April, asking them to complete the questionnaire, if they had not already done so.

Results are expressed as mean±SD. Comparison between groups was by Student’s t-test. Linear regression analysis was performed using SPSS. Variables significant in univariate analysis were further assessed by multiple regression analysis, with stepwise deletion of the least significant variable until only associations with p values <0.05 remained.

Table 1 Self-identified demographic characteristics

Female (n=565)	151 (27%)
Age range (years) (n=565)	
<40*	157 (28%)*
40–50	191 (34%)
50–60	171 (30%)
>60	46 (8%)
Member of an ethnic minority group (n=566)	152 (27%)
Stage/status (n=560)	
Consultant	458 (82%)
Trainee	96 (17%)
Staff grade	6 (1%)
Major specialty (n=560)	
Physician	539 (98%)
Surgeon	7 (1%)
Other	1%
Subspecialty (n=558)	
Hepatology	101 (18%)
Endoscopy	81 (14.5%)
Luminal	237 (42%)
None	93 (17%)
Other	46 (8%)
Substantive (n=551)	
Yes	642 (98%)
No	9 (2%)
Hours worked (n=539)	
>90% Whole Time Equivalent (WTE)	487 (90%)
Current work status (n=562)	
Working	520 (92%)
Retired	6 (1%)
Retired then returned	19 (3%)
On sick leave (>4 weeks)	3 (1%)
Other	14 (3%)
Type of hospital (n=558)	
District General Hospital (DGH)	295 (53%)
University	263 (47%)
Marital status (n=563)	
Married	455 (81%)
Single	55 (10%)
Cohabiting	34 (6%)
Separated	19 (3%)

Total number of informative respondents in parenthesis.

*Including eight respondents <30 years.

RESULTS

Prevalence and significance of stress

Of the 1932 members approached, 567 (29%) responded, although not all answered all questions. [Table 1](#) shows demographic characteristics of the respondents. There were no significant differences between those responding within 24 hours of receiving the questionnaire (or a reminder) and those responding later.

Both stress levels and happiness levels showed a normal distribution. Of 533 respondents, 107 (20%) graded their stress level as 4 or 5 out of 5; and 110

Table 2 Prevalence of behavioural indicators of stress over the past year (n=419)

Behavioural indicators (because of stress)	
Visited general practitioner	30 (7%)
Referred to occupational health	21 (5%)
Taken planned time off work	29 (7%)
Not turned up for work at short notice	7 (2%)
Taken antidepressant/anxiolytic	24 (6%)
Considered taking own life	23 (6%)
Any objective indicator	90 (21%)
Problems at work (because of stress)	
Considered clinical judgement impaired	87 (23%)
Lost temper at work	183 (44%)
Thoughts of leaving (because of stress):	
Hospital where working	202 (48%)
Specialty of gastroenterology	82 (20%)
Medical profession	112 (27%)

(21%) considered themselves unhappy or very unhappy (1 or 2 out of 5). Stress level was inversely correlated with happiness level (Pearson $r = -0.60$; $p < 0.001$), with number of hours slept per night ($r = -0.23$; $p < 0.01$) and with perceived ability to cope with stress ($r = -0.53$; $p < 0.001$). In contrast, stress level was directly correlated with proportion of time off-duty thinking about work ($r = 0.46$; $p < 0.001$) and with proportion of nights with broken sleep ($r = 0.30$; $p < 0.01$).

Table 2 shows the prevalence of behavioural manifestations of stress. The 90 (of 419) respondents (21%) who had at least one such manifestation had higher stress and lower happiness levels (both $p < 0.001$). They also had shorter and more disturbed sleep ($p < 0.006$ – 0.012) and thought more about work while off-duty ($p = 0.002$) compared with those without such manifestations.

Of 419 respondents, 67 (16%) reported drinking alcohol to excess more than twice a month; these also had higher stress levels ($p = 0.002$) than the remainder.

No one reported taking illicit (including prescription) drugs.

Also shown in table 2 is the association of stress with behaviour at work. Respondents who reported either losing their temper at work, perceptions of impaired clinical performance or thoughts of leaving gastroenterology (or medicine entirely) were also more stressed and less happy (all $p < 0.01$) than those whose self-reported work behaviour was unaffected by stress.

These associations suggest that high self-assessed stress levels have behavioural manifestations, and impact negatively on happiness, attitude to work and clinical performance.

Demographic associations of stress and happiness

Respondents aged 40–49 years had higher stress ($p = 0.04$) and lower happiness ($p = 0.028$) levels than those aged < 40 . Stress levels declined (non-significantly) in those aged > 50 years. Women had higher stress levels (2.74 ± 1.1 vs 2.51 ± 1.1 , $p = 0.017$) than men, as did those working full time compared with those working $< 90\%$ WTE (2.61 ± 1.1 vs 2.19 ± 1.1 , $p = 0.012$). This was despite women working full time less frequently than men (81% vs 94%; $p = 0.001$). These two parameters (but not age) remained associated with stress on multivariate analysis. Women also thought about work more when off-duty ($p = 0.03$), compared with men.

Stress level showed no significant association with belonging to an ethnic minority group, marital status, subspecialty, trainee status, DGH or university hospital, number of gastroenterologists in department or catchment area population per gastroenterologist.

Happiness level was, in multivariate analysis, associated positively with married or cohabiting status ($p = 0.03$) and negatively with belonging to an ethnic minority ($p = 0.001$) but had no other demographic associations.

Table 3 Happiness levels (1=very unhappy to 5=very happy) regarding eight factors

Factor	Level of happiness with mean \pm SD	Correlation with overall happiness level			Correlation with overall stress level		
		Univariate	Multivariate		Univariate	Multivariate	
			r	P values		B (SE)	r
Workload	2.56 \pm 0.99	0.58	<0.0001	0.24 (0.04)	-0.46	<0.0001	-0.38 (0.05)
Support from management	2.58 \pm 1.01	0.44	<0.0001	0.10 (0.03)	-0.22	ns	–
Support when things go wrong	2.81 \pm 0.96	0.40	ns	–	-0.29	ns	–
Hospital buildings/facilities	2.94 \pm 1.07	0.37	ns	–	-0.14	ns	–
Ability to cope with stress	3.32 \pm 0.92	0.57	<0.0001	0.25 (0.04)	-0.41	<0.0001	-0.28 (0.05)
Career progression	3.42 \pm 0.99	0.51	<0.0001	0.14 (0.04)	-0.24	ns	–
Support from clinical colleagues	3.48 \pm 1.02	0.51	0.007	0.10 (0.03)	-0.25	ns	–
Home life	3.97 \pm 0.99	0.41	<0.0001	0.15 (0.03)	-0.12	0.052	–

B(SE), slope (SE) of relationship; ns, not significant; r, Pearson regression coefficient.

Table 4 Ranking (in descending importance) of main causes of stress: 7=highest to 0=lowest

Cause	Number responding	Respondents ranking, n (%)		Mean±SD ranking
		Highest	Second highest	
Excessive work	341	162 (47)	77 (23)	4.59±1.99
Working conditions beyond control	331	49 (15)	112 (24)	3.85±1.82
Other work pressures	320	27 (8)	38 (12)	2.77±1.92
Conflict at work	288	25 (9)	26 (12)	2.52±1.92
Work not confident to do	289	20 (7)	27 (9)	2.42±1.90
Clinical errors	291	13 (4)	26 (9)	2.40±1.73
Issues outside work	320	34 (11)	18 (6)	1.49±2.46
Accusations of inappropriate behaviour	283	21 (7)	10 (4)	0.63±2.23

Variable numbers result from some respondents not grading all factors. If recalculated after assigning assumed missing values, similar results and identical ranking order were obtained. Seventy-one respondents stated that they did not feel stressed but 26 of these still reported reasons for stress; these are included here (excluding them did not affect the rankings).

Factors associated with morale

Of eight factors assessed, respondents expressed the highest happiness levels with their home life, followed by support from colleagues and career progression. The lowest happiness levels were with workload, support from hospital management and support when things go wrong (table 3).

Overall happiness level was positively associated with six of these eight factors on multivariate analysis. However, the strongest independent associations were with happiness with workload and with ability to cope with stress. Conversely, these same two factors showed the strongest (and the only independent) negative associations with overall stress level.

On multivariate analysis, happiness with workload was higher in those working part time, compared with full time ($p=0.004$) and in trainees, compared with consultants ($p<0.001$). Women were less happy with their career progression than were men (3.31 ± 0.9 vs 3.51 ± 0.94 , $p=0.031$). Respondents belonging to an ethnic minority were (compared with the remainder) less happy with their home life (3.71 ± 1.03 vs 4.12 ± 0.85 , $p<0.001$) and with support from colleagues (3.28 ± 1.04 vs 3.60 ± 0.93 , $p=0.03$). These associations remained significant ($p=0.001$ and 0.002) on multivariate analysis. Happiness levels with all eight factors were lower ($p=0.001$ – 0.012) in those with behavioural manifestations of stress compared with those without.

Reasons for stress

Excessive clinical work was the cause of stress with the highest mean ranking (ranked highest by 47% of respondents), followed by working conditions beyond control, other pressures at work and conflict at work. Rankings were similar between (1) in men and women, (2) consultants and trainees and (3) the 107 respondents with the highest stress levels (4 or 5 out of 5) and those with stress levels 0–3, apart from a higher ranking of conflict in the former (third vs fourth) (table 4).

Asked to rank the importance (1=lowest to 5=highest) of activities contributing to excessive workload, respondents ranked paperwork as highest (3.48 ± 1.18), followed by outpatient work (3.03 ± 1.34). Inpatient work (2.81 ± 1.47), out-of-hours duties (2.40 ± 1.44) and endoscopy (2.14 ± 1.46) had lower rankings (online supplementary figure).

The most important reason (also ranked 1–5) for excessive workload was increased clinical demand (3.87 ± 1.12), followed by managerial pressure to meet targets (3.34 ± 1.30) and disintegration of clinical teams (3.22 ± 1.51). Under ‘other reasons’, lack of junior medical staff was stated by 22/125 respondents. ‘Working conditions beyond control’ was cited as a cause of stress by 282/390 respondents (72%) and were thought to compromise patient safety by 155. Reasons included inadequate information technology (IT) systems and/or poor access to records (158/193 respondents), inadequate office or clinic space (86/121

Table 5 Ranking by importance of potential strategies to alleviate stress: 6=highest to 1=lowest

Cause	Number responding	Respondents ranking, n		Mean±SD ranking
		Highest	Second highest	
Relief from specific duties	272	96	63	3.54±1.42
Mentoring	263	43	51	2.92±1.42
Resolution of a specific issue	272	60	54	2.76±1.72
Taking time off work	260	41	47	2.65±1.61
Training programme	255	30	46	2.55±1.49
Other	238	17	10	1.03±1.57

respondents) and inadequate secretarial support (46/116 respondents).

Conflict at work had been experienced by 186/400 respondents (46%), who had higher stress scores ($p < 0.001$) and lower happiness scores ($p < 0.001$) than those not experiencing conflict. The most important issues (scored 1–5) were pressure to undertake extra work (2.93 ± 1.44), not being respected to or listened to (2.65 ± 1.70) and work-related disputes (2.59 ± 1.65).

Bullying or harassment had been experienced by 88/387 (23%) of respondents who also reported higher stress and lower happiness scores (both $p < 0.001$) than those not reporting harassment. Harassment was work-related in 63% of cases and occurred with equal frequency in men and women. Only one of 138 respondents (a man in his 60s) reported sexual harassment.

Of 360 respondents, 180 (50%) had had at least one complaint made against themselves; overall (median (range)) 0.5 (0–8). Of 390 respondents, 31 (8%) reported being accused (justifiably or not) of inappropriate behaviour (usually rudeness or temper outbursts). Neither complaints nor accusations were associated with higher stress levels, nor was the latter ranked high as a cause of stress (table 4).

Fear of error was ranked as an important cause of stress (4 or 5 out of 5) by 124/301 respondents (40%). Of 390 respondents, 100 (26%) had been involved in a clinical error or misadventure. Of 379 respondents, 38 and 37 (both 10%) had had their clinical management criticised at a coroner's inquest or severe untoward incident (SUI) investigation respectively. Of 382 respondents, 32 (7%) had been investigated by the General Medical Council (GMC). Respondents reporting these scenarios were more stressed, less happy and had poorer sleep ($p < 0.01$ to < 0.001) than those who did not. However, errors (and their consequences) were not ranked highly overall as a reason for stress (table 4).

Other reasons for work-related stress (124 respondents) included management duties ($n=42$), academic duties ($n=24$) and financial worries ($n=12$).

Suggested solutions

Asked, if they did suffer from stress, how hard (graded 1–5) it would be to see someone at work about this, 39/391 (10%) respondents answered 5 out of 5 ('impossible') and 96/391 (25%) answered 4 out of 5 (table 5).

The highest ranked proposal for alleviating stress was relief from some current duties, followed by a mentoring programme. Of 410 respondents, 83 (20%) already participated in a programme as mentors but only 17 (4%; eight women, nine men) as mentees. Lower-ranked proposals included training programmes; favoured topics were coping mechanisms and minimising error. Trainees ranked mentoring and training programmes higher than did consultants ($p=0.002$ and 0.02 , respectively). The 107

respondents with highest stress levels (4 or 5 out of 5) ranked taking time off work higher (second vs fourth, $p=0.035$) and mentoring lower (fourth vs second, $p=0.008$) than the remainder.

DISCUSSION

Our salient finding is that 20% of UK gastroenterologists reported significant stress levels. This is based first on the self-assessed stress scores (20% reporting levels of 4 or 5 out of 5). These might be regarded simply as the upper part of a normal distribution. Furthermore, some degree of stress might be inevitable and even necessary for optimal performance in a demanding occupation. However, the negative associations of stress severity with self-graded happiness and with sleep duration and quality and the positive associations with thinking about work while off-duty and with behavioural manifestations (table 2) all suggest that stress associates negatively with emotional well-being.

Stress also impacts adversely on work. It is associated with temper outbursts, with impaired (self-perceived) clinical performance, and with thoughts of moving, or of leaving gastroenterology (or medicine entirely). Higher stress level was also associated with self-reported clinical error and its potential consequences (SUIs, coroner's inquests, GMC investigations). While this may reflect mainly the impact of such experiences, stress might itself predispose to clinical error, as suggested by some prospective studies.⁵

Excessive workload emerged consistently as the most important cause of stress and unhappiness. First, happiness with workload was the one factor (of eight potential factors) which had the strongest associations with overall happiness level (positively) and with overall stress level (negatively) (table 3). Second, excessive workload received the highest ranking, of eight potential causes of stress (table 4) both overall and in subgroups defined demographically and by stress levels. Third, those working less than full time reported lower stress levels than did those working full time. Finally, the highest ranked solution to alleviate stress was relief from some clinical duties.

Excessive work was the main cause of stress in the 1993 UK gastroenterologist survey.³ That this remains so might seem surprising, given the over fourfold expansion of UK gastroenterology since. However, demand for gastroenterology services has also increased since the 1990s; reasons include a rising and ageing population, replacement of radiological by endoscopic means of investigation, expansion of therapeutic and screening endoscopy, and increased burden of liver disease. Also, there is increasing pressure to develop 7-day services and to meet imposed targets for service delivery.

The highest ranked component of excessive work was paperwork: presumably patient-related administration. This occupied one sixth of physicians' work time in a recent US study¹²; it was associated with

switching to electronic records and with poor job satisfaction. Increasingly, outpatient management is based on one hospital visit, with chasing and acting on results performed by clinicians in place of a follow-up clinic appointment. While possibly more efficient in use of outpatient capacity, such strategies need dedicated time and adequate systems for processing results. Many respondents expressed unhappiness with secretarial resource and IT systems and with disintegration of clinical teams; such concerns may fuel perceptions of excessive work burden. Unhappiness with managerial support systems was also common.

Our study has weaknesses. We did not use a validated clinical questionnaire such as the Maslach Burnout inventory (MBI),¹⁰ constructing instead a bespoke questionnaire to assess the specific stress drivers in UK gastroenterologists. This complicates comparison with results of other similar surveys (2nd and references,3–8), many of which used the MBI. These studies found the prevalence of depression and/or emotional exhaustion to be 20%–44% (although <10% in one study of US gastroenterologists⁷). They also found positive associations with number of hours worked² and with clinical errors.^{4,5} In a US online survey, gastroenterologists ranked 18th of 29 medical specialties in regard to prevalence of burnout or depression.¹³

The 29% response rate, although a further limitation, is typical of similar surveys.^{2–8} The respondents seem demographically representative of UK gastroenterologists, having similar gender and age distribution and consultant/trainee ratio to those in the 2016 Royal Colleges Census.⁹

While our finding of lower overall happiness scores in respondents from ethnic minorities is consistent with results of some more general surveys,¹⁴ our results (especially the lower levels of happiness these respondents expressed with support from clinical colleagues) merit reflection.

The high prevalence of (sometimes debilitating) stress in high-achieving professionals begs potential solutions. There are no easy ways of alleviating the excessive work burden. Further consultant expansion may slow because of limited resources and availability of candidates, and loss of workforce through early retirement. Potential solutions include (1) development of new roles (non-medical endoscopists, physician associates), (2) strategies to ‘automatise’ aspects of healthcare delivery (information processing, patient recall and management of some conditions by protocols with minimal direct specialist involvement) and (3) less work-intensive investigative strategies such as stool FIT and DNA testing.

Another solution might be encouragement of gastroenterologists to reduce their working hours. Over 90% of respondents worked ‘full time’; many probably do additional clinical, academic and managerial work outside these hours. Put simply, many—perhaps most—gastroenterologists work too hard. The negative

financial consequences of reduced hours might be richly compensated for by opportunities to ‘rebalance’ their lives. In this regard, happiness with home life was ranked higher than happiness with any other factor.

Such a change, although initially reducing workforce capacity, might have positive consequential effects. Facilitation and higher valuation of part-time and flexible working might encourage those currently working part time to increase their hours, those planning early retirement to reconsider and those who have left the workforce to rejoin, with appropriate retraining.

Other potential solutions include improved strategies to address conflict and harassment at work, experienced by 46% and 23% of respondents respectively and both associated with stress and unhappiness. Also, improved support for the 26% of doctors—involved in clinical errors and their consequences, who, as in other studies,^{4,5,7} had high stress and low happiness levels. Level of happiness with available support when things go wrong was the third lowest ranked of eight factors (table 3).

Involvement (locally and nationally) in service development and in professional and specialist societies could help alleviate stress. Finally, improved availability of mentoring: this was the second highest ranked solution proposed. One-third of respondents anticipated difficulty in talking to someone at work if they were suffering from stress. Only 17 (4%) of respondents were being mentored. The discrepancy between this figure and the number of mentors (n=83: 20%) may represent mentoring activities directed at non-gastroenterologists (eg, more junior doctors). Initiatives such

Significance of this study

What is already known on this topic

- ▶ Stress is common in hospital doctors but its significance, epidemiology and causes are not fully understood; also, there are few data in UK gastroenterologists.

What this study adds

- ▶ Significant stress is found in 20% of UK gastroenterologists and correlates with other indicators of emotional ill health, and with suboptimal work performance.
- ▶ Stress is commoner in women than in men and less common in those working part time.
- ▶ The main cause of stress is excessive work, followed by working conditions beyond control and conflict.

How might it impact on clinical practice in the foreseeable future

- ▶ By initiating debate about (1) ways to address suboptimal working conditions and conflict and (2) the potential benefits to health of reducing working hours.

as the BSG-led Supporting Women In Gastroenterology mentoring scheme merit wider application.

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