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Paper:

Doctors' perception of support and the processes involved in complaints investigations and how these relate to welfare and defensive practice: a cross sectional survey of UK physicians

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Key words: anxiety, depression, defensive practice, physicians, regulation

Abstract

Objective How adverse outcomes and complaints are managed may significantly impact on physician wellbeing and practice. We aimed to investigate how depression, anxiety and defensive medical practice are associated with doctors actual and perceived support, behaviour of colleagues and process issues regarding how complaints investigations are carried out.

Design A survey study. Respondents were classified into three groups: no complaint, recent/current complaint (within 6 months) or past complaint. Each group completed specific surveys.

Setting British Medical Association (BMA) members were invited to complete an online survey.

Participants 95,636 members of the BMA were asked to participate. 7926(8.3%) completed the survey of whom 1780(22.5%) had no complaint, 3887 (49.1%) a past complaint and 2257(28.5%) a recent/current complaint. We excluded those with no complaints leaving 6144 in the final sample.

Primary outcomes measures We measured anxiety and depression using the generalized anxiety disorder scale (GAD-7) and physical health questionnaire (PHQ-9). Defensive practice was assessed using a new measure for avoidance and hedging.

Results Most felt supported by colleagues (61%), only 31% felt supported by management. Not following process (56%), protracted timescales (78%), vexatious complaints (49%), feeling bullied (39%), or victimised for whistleblowing (20%), and using complaints to undermine (56%) were reported. Perceived support by management (RR depression:0.77,

95% CI 0.71-0.83 RR anxiety:0.80, 95% CI 0.74-0.87), speaking to colleagues (RR:0.64, 95% CI 0.48-0.84 and RR:0.69, 95% CI 0.51-0.94 respectively), fair/accurate documentation (RR depression:0.80, 95% CI 0.75-0.86; RR anxiety:0.81, 95% CI 0.75-0.87), and being informed about rights, correlated positively with wellbeing and reduced defensive practice. Doctors worried most about professional humiliation following a complaint investigation (80%).

Conclusions Poor process, prolonged timescales, and vexatious use of complaints systems are associated with decreased psychological welfare and increased defensive practice. In contrast perceived support from colleagues and management is associated with a reduction in these effects.

Strengths and limitations of this study

Strengths

- A large number of physicians responded (10,930) and 6,144 who had experienced a complaint completed the survey.
- Aspects of mental distress have been documented using validated questionnaires.
- We guaranteed to doctors filling in the survey that their responses were anonymous and untraceable; as a result we feel respondents would have been more likely to be honest and open with their opinions.

Limitations

- As we asked about past complaints, recall bias should be considered when interpreting the responses.
- The overall response rate of 11.4% means that ascertainment bias must be considered when looking at the results, although it should also be borne in mind that those most effected by a complaints process may have avoided taking part in the

survey and doctors who have changed profession or been erased from the register would not have been included in the survey.

Introduction

We have previously reported on the impact of complaints procedures on the welfare, health and clinical practice of doctors in the United Kingdom (UK)[1]. In this cross-sectional survey study we used validated questionnaires to show doctors who had received a recent complaint were twice as likely to report suicidal thoughts, 77% more likely to suffer moderate to severe depression and had twice the risk of moderate to severe anxiety compared to those with no history of a complaint. The association was strongest when a complaint involved a referral to the UK regulator (the GMC). Doctors with a recent or current complaint also reported increased sleep difficulties, anger and irritability, and relationship problems. We further found that 80% of doctors who responded to the survey practised medicine more defensively following complaints against themselves or colleagues. This involved "hedging", which includes performing more tests than necessary, over-referral, and overprescribing as well as "avoidance" which includes avoiding procedures, not accept high-risk patients or abandoning procedures early. We have also reported qualitative data on doctor's experiences of complaints[2]. Physicians described feeling emotionally distressed; powerless, fearful of the consequences, unsupported, and that their complaint was unfair. They reported that significant stressors were the unpredictability and prolonged duration of procedures, incompetence and poor communication by managers and a feeling that processes are biased in favor of complainants. Many said they practiced defensively, limited their practice or changed career after a complaint. Very few physicians reported positive outcomes from complaints investigations.

In December 2015, Verhoef and colleagues[3] carried out a semi-structured interview study on the impact of disciplinary processes on doctors in the Netherlands. They found that disciplinary processes can have a profound psychological and professional impact and that

the time taken to carry out an investigation was a main contributing factor. In a study published in the British Medical Journal, Jain and Ogden[4] described the impact of patient complaints on general practitioners in the United Kingdom and reported an association with anger, depression and suicide. It is important to note that they also described clinicians involved in complaints practicing medicine more defensively.

Others have also warned of the unintended consequences of regulation; McGivern and Fischer have argued that regulation is often focused on high profile cases that promote the view that more regulation is required[5]. This approach fails the "invisible majority" of doctors who have never been accused of malpractice but who nevertheless become anxious about regulation and engage in defensive practice.

Recently Reisch and colleagues[6], in a survey of breast pathologists, reported that over 80% ordered additional tests in response to malpractice fears, recommended additional surgical sampling, or asked for further opinions. The authors concluded that these defensive practices have important implications for cost and for patient-safety. The data of Studdart et al[7] support these findings, they found that 93% of doctors practiced defensively in high liability environments, 43% of these ordered imaging when it was not necessary and 42% had restricted their practice in the previous three years to reduce their exposure to perceived risk.

Litigation, complaints and investigations are part of the processes that are designed to protect patients and maintain appropriate clinical standards. However, the burden and stress associated with these processes are clearly having unintended consequences and it may be argued that when examined as a whole, these structures may be causing more harm to patient care than good. Whilst the regulatory system may protect patients from the misconduct of a relatively small number of doctors, it has a perverse effect on the majority

of doctors who become preoccupied by defensive practice.

In our previous paper on the impact of complaints on doctors we reported on the association between complaints procedures and doctors' wellbeing[1]. We did not examine what aspects of the complaints processes or the behaviour of colleagues impacts either positively or negatively on doctor's wellbeing and health. This would be of interest as this information could then be used to amend processes to make them less damaging.

In this paper we investigate whether depression, anxiety and defensive medical practice is associated with the support that is sought by doctors during complaints processes, their perceived support, the behaviour of colleagues as well as factors relating to complaints processes. Our expectation was that support from management and colleagues would ameliorate the impact of complaints processes. Conversely we expected examples of poor process and behaviour would be associated with a negative effect of doctor's wellbeing and increase defensive practice.

Methods

Design and participants

The British Medical Association (BMA) is the trade union and professional body representing 170,000 doctors in the UK. Membership is voluntary. In November 2012, we invited 95 636 members of the BMA, who had previously consented to take part in research to participate in the study. We sent them an email containing an information sheet describing the study and a link to an encrypted online questionnaire using Survey Monkey. We guaranteed to the participants that their responses would be both anonymous and untraceable, all consented to take part before starting the questionnaire.

The survey was open for two weeks during which time three reminders were sent out. In total, 10 930 (11.4%) doctors responded. Of those, we excluded 696 (6.4%) because they completed the demographics section only, and 121 (1.1%) as a technical error led to them being given incorrect sections to fill in. In total, 7926 (72.5%) doctors completed the survey of whom 1380 did not fill in some sections but we included them in the full analysis. Of the 7926 participants, 1780 (22.5%) had no complaint, 3889 (49.1%) had a past complaint and 2257 (28.5%) had a recent/current complaint. Participants with no complaints were excluded from this analysis relating to the experience of complaints processes as well as participants who did not answer any of the questions on the process, leaving us with 6144 participants in the final sample, of which 63% had a past complaint and 37% had a recent or current complaint. We compared our study population to the characteristics of the entire BMA database to see if our cohort of members was representative. We found our population was similar in relation to gender, but slightly older with more consultants and GP's and fewer from ethnic minorities compared to the BMA database. Details of this comparison can be found in table 1.

The different types of complaint or investigation that were considered in the study were as follows:

Informal (21%): this involves the complainant talking directly to the individual concerned about their complaint. If not resolved locally it can be escalated.

Formal (52%): this is a written complaint, most often to the chief executive or an organization that required an investigation to be carried out and a written response given. The outcome may be that disciplinary action or referral to the GMC ensues.

Serious Untoward Incident (SUI) (12%): an SUI generally relates to a poor clinical outcome, unexpected death or threat to public health. However it may also occur if an event may damage the reputation or lead to a lack of confidence in a service. Again the outcome may lead to a recommendation for disciplinary action or referral to the regulator (the GMC).

General Medical Council (15%): a complaint about a doctor can be made to the GMC not only for concerns about their clinical practice, but also their personal behaviour. The GMC can suspend doctors from work whilst they investigate them, issue warnings and undertakings, restrict a doctor's practice or make them work under supervision, suspend them or permanently strike them off the medical register and prevent them from working.

The survey

We used a cross-sectional survey design where participants were streamed into three groups: current/recent complaint (on-going or resolved within the last 6 months), past complaint (resolved more than 6 months ago) and no complaints (not included in this analysis). Each group completed a slightly different version of the questionnaire. Participants in the current complaints and no complaints group were asked about their current mood and health whereas the past complaints group were also asked to respond about their mood

and health at the time of the complaint. We trialled the questions on process on 20 doctors of different grade and specialty and incorporated their feedback into the questionnaire design. We have included the questionnaire as supplementary online information (see online supplementary file 1). Further information on the questionnaire can be found in Bourne et al. (2015)[1]. We estimate that the time required to fill in the entire questionnaire was thirty minutes.

Measures

Complaints exposure and process

We asked physicians 75 questions about their complaint(s), whether it had occurred in the past or was current. We generated the questions from the pilot study and also from Bark and colleagues[7]. These included why the complaint had occurred, who made it, how long the process went on for, the outcome and estimated direct and indirect costs as well as support sought and obtained. Whilst the majority of the questions used a 5-point scale, some questions were qualitative and a few were yes/no.

Support sought by doctors during complaints processes

Eight questions were asked about what support was sought by doctors during the complaints process. Each question related to support from a different source and an option was given to answer yes or no.

Perceived support

Agreement with fifteen statements on perceived support was measured using a 5-point scale from “strongly agreed” to “strongly disagreed”. Respondents were also able to mark the questions on perceived support as “not applicable”.

Worrying about outcome

Seven possible outcomes were listed in the survey and doctors were asked to what extent they were worried about them ranging on a 5-point scale from "not at all" to "a lot".

Factors relating to complaints processes and behaviour of colleagues

Issues about the process followed and colleagues' behaviour in relation to the complaint were assessed using eleven statements. The doctor was asked to what extent these applied on a 5-point scale from "not at all" to "definitely".

Depression and anxiety

Current depression was assessed using the *Physical Health Questionnaire* (PHQ-9)[8,9]. Respondents with a score ≥10 were considered depressed. We used the *Generalized Anxiety Disorder* scale (GAD-7)[10] to assess current anxiety, and respondents were considered to be anxious if they had a score ≥10. Both are well-validated and standardised measures of symptom severity of depression and anxiety respectively.

Defensive medical practice

Following a review of the literature, we developed twenty items to measure defensive medical practice[6,11,12]. Twelve further items were developed from the pilot study. These were rated either with a yes/no response or on a 5-point scale. After carrying out an exploratory factor analysis, two underlying factors were identified. The first related to carrying out too many investigations and being over cautious regarding the management of patients – we called this "hedging" and was measured on a scale from 0 to 36 (9 items, for example "carried out more tests than necessary", "referred patient for second opinion more than necessary" and "admitted patients to the hospital when the patient could have been discharged home safely or managed as an outpatient", Cronbach's α=0.92). The second

factor we called “avoidance” as it related to avoiding some areas of practice, this was measured on a scale from 0 to 12 (3 items, “stopped doing aspects of my job”, “not accepting high risk patients in order to avoid possible complications”, and “avoiding a particular type of invasive procedure”, Cronbach’s α=0.77).

Avoidance was dichotomized as never displaying avoidance behaviour and displaying at least some avoidance behaviour. Approximately half of the respondents (54%) never displayed avoidance behaviour. There were few respondents (16%) that never displayed hedging behaviour, therefore we decided to use a median split to dichotomize hedging. A score below the median (<10) would then indicate that the respondent never or seldom engaged in hedging, whilst a score above the median (≥10) would indicate that the respondent sometimes or often engaged in hedging behaviour.

Financial costs

Finally respondents were asked to estimate the direct financial costs (e.g. travel, legal fees, etc.) and indirect costs (lost earning) associated with the complaint procedure they were involved in.

Statistical analysis

To analyse associations with defensive practice, only doctors with an ongoing/recent complaint (n=2257) and doctors with a past complaint (n=3887) were included. For the analysis on depression and anxiety, only doctors with an ongoing/recent complaint were included since there are too many confounding variables that could have influenced the current level of depression or anxiety of doctors with a past complaint.

The outcome variables (depression, anxiety, avoidance, hedging) were dichotomized as described above. To examine relationships with the outcome variables, a Poisson regression analysis with robust error variance was used to estimate relative risks[13]. When using items of perceived support, we withheld the possible answer "not applicable" from the analyses since this did not convey any information on levels of perceived support. Relative risks were visualized using forest plots. No significance testing was used, results were presented with 95% confidence intervals to quantify the uncertainty. We assessed whether relationships varied with the type or timing of the complaint using interaction terms. We used the dependent false discovery rate procedure as a guide to explore potentially relevant interaction terms[14]. The procedure was used once for type of complaint (116 interaction terms), and once for timing of complaint (58 interaction terms), both using a 5% alpha level.

As is typical in survey research, we observed item non-response. To be consistent with our previous analysis[1], missing data was addressed using multiple stochastic imputation (MI). Using this approach, missing values were replaced by 100 plausible values leading to 100 completed datasets. Replacing missing values multiple times represents the uncertainty about the imputed values (see supplementary file S2).

A sensitivity analysis was then performed to assess the impact of item non-response by comparing the results of complete case analysis to results after MI, which assumes

'missingness at random'. In addition, a second MI analysis was performed assuming 'missingness not at random' for the outcome variables because these are based on sensitive questions. It is plausible respondents with missing data might have been more anxious or depressed, or more likely to display hedging or avoidance (see supplementary file S2). Results for the complete case analysis for MI based on missingness at random and for MI based on missingness not at random were similar, hence we only report results for standard MI (assuming missingness at random). SAS was used for the data analysis (V.9.4, SAS Institute, Cary, North Carolina, USA). MIs were performed using the mice package[15] in R[16].

Results

Descriptive statistics

Detailed information on the descriptive statistics of items assessing different aspects of actual support, perceived support, process related issues and worry about the consequences of a complaint are seen in table 2. Most physicians discussed their complaint with family, friends, or colleagues.

Perceived support: The majority (61%) felt supported by their colleagues, whereas only 31% reported they felt supported by management.

Process issues: 56% said normal process was not followed. For example 78% indicated that the timescale was needlessly protracted, 27% did not feel they were informed about representation, and 17% thought the documentary record was not fair and accurate.

Behaviour: 20% felt victimized for being a whistle-blower and 39% reported being bullied during the investigation. Inappropriate or vexatious abuse of the complaints system was reported by 49% of physicians, 32% felt managers used a complaint to undermine them, and 24% reported colleagues used a complaint to take advantage either financially or professionally.

Most respondents worried about the consequences of the complaint. The most common concerns were professional or public humiliation (80% and 70% respectively) and having a marked record in the future (79%).

Direct and indirect financial costs of the complaint

The vast majority, 86.7 % and 89.4%, of respondents did not complete the section on direct and indirect financial costs, respectively (table 3). Direct costs (mean: £6813, median: £400) were estimated to be lower than indirect costs (mean: £62,043, median: £5000). The

estimated direct and indirect costs showed high variability between respondents (see table S1).

Psychological welfare and health

The relative risks for associations with depression and anxiety are presented in table 3 and figure 1.

Actual and perceived support

Depression and anxiety were more common amongst doctors who reported speaking to family or friends about their complaint (RR depression: 1.46, 95% CI 1.06-2.02; RR anxiety: 1.58, 95% CI 1.11-2.26), when they engaged independent legal advice (RR depression: 1.85, 95% CI 1.45-2.36; RR anxiety: 1.70, 95% CI 1.29-2.23), accessed support from the BMA employment advice service (RR depression: 2.06, 95% CI 1.68-2.52; RR anxiety: 1.71, 95% CI 1.35-2.17), or BMA counselling service (RR depression: 1.91, 95% CI 1.50-2.44; RR anxiety: 1.74, 95% CI 1.33-2.29). The risk ratios for both depression and anxiety were lowest when doctors reported they had spoken to their colleagues (RR: 0.64, 95% CI 0.48-0.84; and RR: 0.69, 95% CI 0.51-0.94 respectively).

Perceived support from management was associated with a less depression and anxiety (RR depression: 0.77, 95% CI 0.71-0.83; RR anxiety: 0.80, 95% CI 0.74-0.87). The perception of support from medical professional organizations, and defence organizations also related to lower rates of depression and anxiety (RRs depression: 0.84 for both items; RRs anxiety: 0.87 for both items).

Process related issues: When the timescale for a complaints investigation was protracted this was associated with greater anxiety and depression (RR: 1.16, 95% CI 1.08-1.26; and RR: 1.20, 95% CI 1.12-1.29 respectively). Perceiving that normal process was not being followed

was also associated with increased anxiety (RR: 1.18, 95% CI 1.10-1.26) and depression (RR: 1.15, 95% CI 1.08-1.23). Conversely feeling the documentary record was fair and accurate was related to less depression and anxiety (RR depression: 0.80, 95% CI 0.75-0.86; RR anxiety: 0.81, 95% CI 0.75-0.87).

Behavioural issues: Feeling bullied, victimised as a whistle-blower, and perceiving colleagues or management were taking advantage of the situation were associated with higher rates of depression and anxiety (RRs 1.15-1.28 for depression; and 1.16-1.30 for anxiety).

Worrying about the consequences of the complaint: The more doctors were worried about the consequences of the complaint, the higher the reported depression and anxiety (RRs: 1.38-1.53 for depression and 1.33-1.52 for anxiety).

Defensive practice

The relative risks for hedging and avoidance are presented in table 3 and figure 2. There were clear differences in results for hedging and avoidance.

Actual and perceived support

Hedging was greatest when doctors spoke to family or friends (RR: 1.28, 95% CI 1.17-1.41), spoke to colleagues (RR: 1.23, 95% CI 1.09-1.40), and when they accessed help from medical professional support organizations (RR: 1.22, 95% CI 1.15-1.30). No clear relationships were found between perceived support and hedging. Generally, process related issues were not strongly associated with hedging although a protracted timescale for a complaints process was a factor (RR: 1.05, 95% CI 1.03-1.07)

Avoidance related positively to most aspects of actual support (RRs: 1.01-1.25), but was lower when doctors perceived they were well supported by their management (RR: 0.91, 95% CI 0.89-0.93) or colleagues (RR: 0.90, 95% CI 0.89-0.92).

Process related issues and worrying about the consequences of the complaint

Whilst process related issues were not strongly related to hedging, avoidance behaviour (e.g. abandoning procedures early) was more common when negative process or behavioural issues were reported (RR: 1.07-1.11). Conversely positive process issues (e.g. being well-informed about representation) were related to lower rates of avoidance.

Worrying about the consequences of the complaint was related to higher rates of hedging and avoidance (RRs: 1.10-1.14 for hedging; and 1.14-1.15 for avoidance).

Interactions with type of complaint and recent/past complaint

We have no evidence that relationships with the outcome variables depend on type or timing of complaint based on the dependent false discovery rate procedure. Details of these results are given in supplementary table 1.

Discussion

We have shown that there are a number of factors relating to complaints processes and how they are managed that are associated with the wellbeing of doctors involved as well as the likelihood of them practicing defensive medicine. Our data suggest that how doctors respond to complaints is associated with their perception of the fairness of the process used to investigate them and the behaviour of colleagues involved. The relative risk of anxiety and depression was increased when doctors reported the timescale of a complaint was protracted, processes were not followed or used inappropriately and managers or colleagues used complaints processes to their advantage. Importantly, psychological morbidity increased when complaints were associated with a dysfunctional team, whistleblowing and bullying. Conversely, evidence of good process such as being kept well-informed and accurate minute taking was associated with improved psychological welfare and less defensive practice. Feeling supported by colleagues was associated with the greatest positive impact.

A strength of the study is that to our knowledge, this is the largest study relating to this subject in the UK with responses from over 6000 doctors. A further important factor is that we guaranteed that all responses would be anonymous and untraceable, which we think is vital when asking doctors for their opinions on issues that involve complaints processes and in particular their regulator. We believe it is important that we have used validated instruments to assess levels of anxiety and depression. The main limitation of the study is the overall response rate of 11.4%, and so we must be cautious about the possibility of ascertainment bias. However it should also be remembered that doctors who have been most traumatised may avoid taking part in the survey, whilst doctors who have been struck of the register, changed profession or committed suicide would not have completed the

survey. A further consideration when interpreting the data, are that levels of support were self-reported by the doctors in the study.

The results suggest there may be an association between speaking to family, friends and colleagues and accessing support from a professional organization and increased hedging and avoidance. It seems more likely that these actions reflect a tendency to seek advice in cases where the impact is greatest. A similar pattern is seen for depression and anxiety. The clear exception is "speaking with colleagues". When doctors reported that they spoke to colleagues, they were significantly less likely to suffer from anxiety and depression. In the event of a serious event, a doctor may be suspended from practice and denied access to colleagues. Our data suggest this practice may damage the mental health of doctors and should be avoided. Whilst removing a doctor from clinical contact to protect patients may be necessary, it is unreasonable to stop them asking colleagues for support. Indeed it might be better if this was encouraged. It is notable that when doctors perceived they had the support of both colleagues and management, this was associated with less avoidance and psychological morbidity.

In 2012 McGivern, et al[17] described how values associated with "transparency" such as openness, independent review and accountability, though generally assumed to be beneficial, may have unintended consequences. These authors also examined reactivity mechanisms using interviews with medical staff and concluded that clinicians make sense of regulation through the experiences of their peers and stated "this heightens their anxiety about regulators misunderstanding the complexity of their practice and looking to find malpractice in an inquisition-like climate of presumed guilt."[17] We have previously how approximately 80% of doctors report hedging (e.g. overprescribing, over-referral) and 40% report avoidance (abandoning procedures early, avoiding difficult patients or procedures).

These behaviours may have a serious impact on patient care. Our data suggest that how investigations are carried out and the support given to doctors whilst being subject to investigation may alter doctor's behaviour and increase both defensive practice and psychological morbidity. An example of this is the time taken to carry out a complaint investigation. Seventy-eight per cent of respondents indicated that the timescale involved in their complaint was protracted; whilst figures 1 and 2 show that a protracted timescale is associated with increased avoidance as well as anxiety and depression. More rigorous oversight of regulators with fixed timescales permitted for investigation and resolution of a complaints process would seem deliverable. It would also seem a straightforward requirement that investigative bodies follow normal processes, and documentation is fair.

A further important factor appears to be the behaviour both of colleagues and those carrying out an investigation. Feeling undermined by management, feeling bullied or victimized, being involved in a dysfunctional team, inappropriate or vexatious use of clinical risk processes and feeling colleagues were taking advantage of the situation were associated with more depression, anxiety and avoidance. It should be possible to rectify these issues.

A recent review of doctors who committed suicide whilst under investigation by the GMC concluded that that the GMC has a demonstrable duty of care to those it investigates[18]. The authors cited poor communication, lack of support and unacceptable delays as being factors that increased physician stress. These themes are not dissimilar to the procedural issues we found to be associated with increased psychological. Our data is derived from all complaints processes and not just referrals to the GMC, so this is a much wider problem than the almost 10,000 doctors referred to the regulator in the UK[19,20]. Accordingly it can be seen that if procedures and behaviour are not appropriate for all types of investigations these may all

have a significant impact on the wellbeing of doctors. Furthermore procedures that cause avoidance and hedging will be harmful to patients and incur significant costs. In the United States a recent call to action in the American Journal of Obstetrics and Gynecology highlighted the dangers of burnout[21]. The National Academy of Medicine has also recognised there is an urgent need to address the issue of physician wellbeing[22]. As part of these initiatives, rectifying a culture for investigating complaints that damages doctors and potentially harms patients because of defensive practice should be a priority.

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Contributors: TB conceived of the original idea for the study, interpreted results, drafted the paper and is overall guarantor. MJ designed the questionnaire, obtained ethical approval, contributed to the preparation of the data set, interpreted results and contributed to drafts of the paper. BDC, LW and BVC carried out the statistical analysis and contributed to interpretation of results and drafts of the papers. MP contributed to the study design, interpretation of results and commented on drafts of the paper. DT and CVA contributed to interpretation of results and commented on drafts of the paper. All authors approved the final version of the manuscript.

Transparency: TB, BVC, MJ and DT are the guarantors, and affirm that that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Contribution, v) the inclusion of electronic links from the Contribution to third party material where-ever it may be located; and, vi) licence any third party to do any or all of the above."

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Tables and Figures

Table 1. Demographic information for the study population compared to the total BMA membership consented for research

	Total BMA membership consented for research (%)	Study Population N (%)
Age:	–	–
- up to 25	17.8%	15 (0.2%)
- 26 to 29	9.0%	164 (2.7%)
- 30 to 34	9.6%	398 (6.5%)
- 35 to 39	10.3%	643 (10.5%)
- 40 to 44	10.3%	837 (13.7%)
- 45 to 49	10.8%	1105 (18.1%)
- 50 to 54	10.3%	1262 (20.7%)
- 55 to 59	8.1%	1013 (16.6%)
- 60 to 64	5.0%	429 (7%)
- 65 to 69	3.0%	178 (2.9%)
- over 69	5.9%	63 (1%)
Gender:	46.3% Female	2800 (46.5%) Female
Place of qualification:	–	–
- UK	80.1%	5077 (82.6%)
- India	8.2%	331 (5.4%)
- Pakistan	2.2%	55 (0.9%)
- Ireland	0.9%	90 (1.5%)
- Nigeria	1.1%	64 (1%)
- Germany	0.7%	79 (1.3%)
- South Africa	0.7%	58 (0.9%)
- Other	6.2%	390 (6.3%)

Table 1. Demographic information (continued)

	Total BMA membership consented for research (%)	Study Population N (%)
Ethnicity:	–	–
- White British	67.6%	4825 (80.5%)
- Asian or Asian British	23.3%	849 (14.2%)
- Black or Black British	3.5%	122 (2%)
- Chinese or Chinese British	2.9%	69 (1.2%)
- Mixed	2.7%	127 (2.1%)
Grade:	–	–
- Academics	2.1%	66 (1.1%)
- Consultants	27.2%	2301 (37.5%)
- General practice	26.0%	2643 (43%)
- Junior Doctors	26.4%	568 (9.2%)
- SASC	5.3%	313 (5.1%)
- Retired	8.6%	54 (0.9%)
- Other or no answer	4.4%	199 (3.2%)
Specialty[1]:	–	–
- Accident and emergency	/	137 (2.3%)
- Anesthetics	/	341 (5.7%)
- General Medicine	/	690 (11.4%)
- General Practice	/	2845 (47.2%)
- Obstetrics and gynecology	/	62 (1%)
- Oncology	/	111 (1.8%)
- Other	/	271 (4.5%)
- Pediatrics	/	66 (1.1%)
- Pathology	/	495 (8.2%)
- Psychiatry	/	106 (1.8%)
- Radiology	/	604 (10%)

[1] No data was available on the distribution of specialty in the BMA population.

Table 2. Descriptive information for the items in the questionnaire used in the analysis

Actual Support	Missing	No	Yes				
Spoke to family/friends about it	660	786 (14%)	4698 (86%)	–	–	–	–
Spoke to colleagues about it	625	406 (7%)	5113 (93%)	–	–	–	–
Represented yourself	1014	3218 (63%)	1912 (37%)	–	–	–	–
Accessed support from medical professional support organisation	801	2177 (41%)	3166 (59%)	–	–	–	–
Engaged an independent solicitor	1016	4702 (92%)	426 (8%)	–	–	–	–
Accessed support from BMA employment advice service	950	4564 (88%)	630 (12%)	–	–	–	–
Accessed support from BMA counselling/other support organisation	983	4764 (92%)	397 (8%)	–	–	–	–

Perceived support	Missing	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Not applicable
I felt supported by management	819	1252 (24%)	521 (10%)	952 (18%)	952 (18%)	716 (13%)	932 (18%)
I felt supported by my colleagues	782	489 (9%)	393 (7%)	787 (15%)	1537 (29%)	1734 (32%)	422 (8%)
I felt supported by my medical professional organisation	890	307 (6%)	260 (5%)	946 (18%)	602 (11%)	588 (11%)	2551 (49%)
I felt supported by my defence organisation	826	214 (4%)	221 (4%)	659 (12%)	1077 (20%)	1547 (29%)	1600 (30%)

BMA: British Medical Association

Table 2. Descriptive information for the items in the questionnaire used in the analysis (continued)

Process related issues	Missing	Not at all	A little	To some extent	Quite a lot	Definitely
Normal process was not followed	1116	2164 (43%)	600 (12%)	1014 (20%)	525 (10%)	725 (14%)
Documentary record was fair and accurate	1703	749 (17%)	545 (12%)	1116 (25%)	1124 (25%)	907 (20%)
Timescale was needlessly protracted	1316	1066 (22%)	737 (15%)	1006 (21%)	627 (13%)	1392 (29%)
Well informed of when and if I could bring representation	1820	1187 (27%)	601 (14%)	1059 (25%)	827 (19%)	650 (15%)
Inappropriate or vexatious use of hospital clinical risk process	1990	2098 (51%)	470 (11%)	626 (15%)	298 (7%)	662 (16%)
Complaint was due to dysfunctional team	1559	2910 (63%)	323 (7%)	481 (10%)	267 (6%)	604 (13%)
Felt victimised because I had been a whistle-blower	1691	3552 (80%)	184 (4%)	190 (4%)	148 (3%)	379 (9%)
Clinical issues raised against me after the initial complaint	1612	3571 (79%)	221 (5%)	270 (6%)	153 (3%)	317 (7%)
I felt bullied during the investigation	1517	2842 (61%)	372 (8%)	502 (11%)	268 (6%)	643 (14%)
Managers used complaints to undermine my position	1603	3117 (69%)	307 (7%)	333 (7%)	207 (5%)	577 (13%)
Colleagues used process to gain advantage financially or professionally	1561	3495 (76%)	233 (5%)	267 (6%)	149 (3%)	439 (10%)

Table 2. Descriptive information for the items in the questionnaire used in the analysis (continued)

Worries about the complaint	Missing	Not at all	A little	To some extent	Quite a lot	A lot
I worried about loss of livelihood	953	1889 (36%)	605 (12%)	1034 (20%)	380 (7%)	1283 (25%)
I worried about public humiliation	951	1532 (30%)	593 (11%)	1164 (22%)	606 (12%)	1298 (25%)
I worried about professional humiliation	923	1069 (20%)	562 (11%)	1229 (24%)	738 (14%)	1623 (31%)
I worried about having aspects of clinical practice restricted	972	2296 (44%)	720 (14%)	810 (16%)	446 (9%)	900 (17%)
I worried about family problems	984	2738 (53%)	569 (11%)	704 (14%)	398 (8%)	751 (15%)
I worried about having a marked record in the future	937	1105 (21%)	524 (10%)	1098 (21%)	746 (14%)	1734 (33%)
I worried about financial costs	985	2227 (43%)	701 (14%)	894 (17%)	438 (8%)	899 (18%)

Table 3. Relative risks for anxiety, depression, hedging and avoidance behaviour in relation to perceived and actual support, colleagues' behavior as well as process-related issues

	Relative Risks (95% CI)			
Item	Anxiety	Depression	Hedging	Avoidance
Actual support:	–	–	–	–
Spoke to family/friends	1.58 (1.11-2.26)	1.46 (1.06-2.02)	1.28 (1.17-1.41)	1.15 (1.05-1.27)
Spoke to colleagues	0.69 (0.51-0.94)	0.64 (0.48-0.84)	1.23 (1.09-1.40)	1.01 (0.90-1.13)
Represented yourself	1.19 (0.96-1.47)	1.29 (1.06-1.57)	0.99 (0.93-1.05)	1.07 (1.01-1.15)
Medical professional support	1.15 (0.93-1.42)	1.31 (1.07-1.60)	1.22 (1.15-1.30)	1.19 (1.12-1.27)
Independent solicitor	1.70 (1.29-2.23)	1.85 (1.45-2.36)	0.98 (0.89-1.09)	1.19 (1.08-1.30)
BMA employment advice service	1.71 (1.35-2.17)	2.06 (1.68-2.52)	0.81 (0.74-0.90)	1.24 (1.14-1.34)
BMA counselling	1.74 (1.33-2.29)	1.91 (1.50-2.44)	0.96 (0.86-1.07)	1.25 (1.14-1.38)
Perceived support from:	–	–	–	–
Management	0.80 (0.74-0.87)	0.77 (0.71-0.83)	0.98 (0.96-1.00)	0.91 (0.89-0.93)
Colleagues	0.78 (0.73-0.84)	0.77 (0.72-0.83)	0.96 (0.94-0.98)	0.90 (0.89-0.92)
Medical professional support	0.87 (0.79-0.96)	0.84 (0.77-0.93)	0.98 (0.95-1.01)	0.98 (0.95-1.01)
Defence organisation	0.87 (0.79-0.95)	0.84 (0.77-0.91)	1.03 (1.00-1.06)	0.96 (0.93-0.99)
Process related issues*:	–	–	–	–
Normal process not followed	1.18 (1.10-1.26)	1.15 (1.08-1.23)	1.01 (0.99-1.03)	1.07 (1.05-1.09)
Documentary record was fair and accurate	0.81 (0.75-0.87)	0.80 (0.75-0.86)	0.98 (0.96-1.00)	0.94 (0.92-0.96)
Time scale was needlessly protracted	1.16 (1.08-1.26)	1.20 (1.12-1.29)	1.05 (1.03-1.07)	1.10 (1.07-1.12)
Informed of rights regarding representation	0.94 (0.87-1.02)	0.96 (0.89-1.03)	0.97 (0.95-0.99)	0.96 (0.94-0.98)
Inappropriate or vexatious use of risk process	1.17 (1.10-1.25)	1.18 (1.11-1.26)	1.02 (1.00-1.04)	1.10 (1.08-1.12)
Complaint due to dysfunctional team relationships	1.19 (1.12-1.26)	1.19 (1.12-1.25)	0.99 (0.97-1.01)	1.08 (1.06-1.10)
Felt victimised as a whistleblower	1.22 (1.15-1.30)	1.23 (1.17-1.30)	0.99 (0.97-1.01)	1.09 (1.07-1.11)
Clinical issues raised against me after the initial complaint	1.20 (1.13-1.28)	1.22 (1.15-1.29)	1.04 (1.01-1.06)	1.11 (1.08-1.13)
Felt bullied during the investigation	1.30 (1.22-1.38)	1.28 (1.22-1.35)	1.03 (1.01-1.05)	1.11 (1.09-1.13)
Managers used complaints processes to undermine my position	1.25 (1.18-1.33)	1.27 (1.20-1.34)	1.01 (0.99-1.03)	1.11 (1.09-1.13)
Colleagues used process to take advantage financially or professionally	1.22 (1.15-1.30)	1.22 (1.16-1.29)	1.02 (1.00-1.04)	1.11 (1.09-1.14)

* Items have been paraphrased from the original questionnaire. The full questionnaire can be found in the Table 5.

Table 3. Relative risks for anxiety, depression, hedging and avoidance behaviour in relation to perceived and actual support, colleagues' behavior as well as process-related issues (continued)

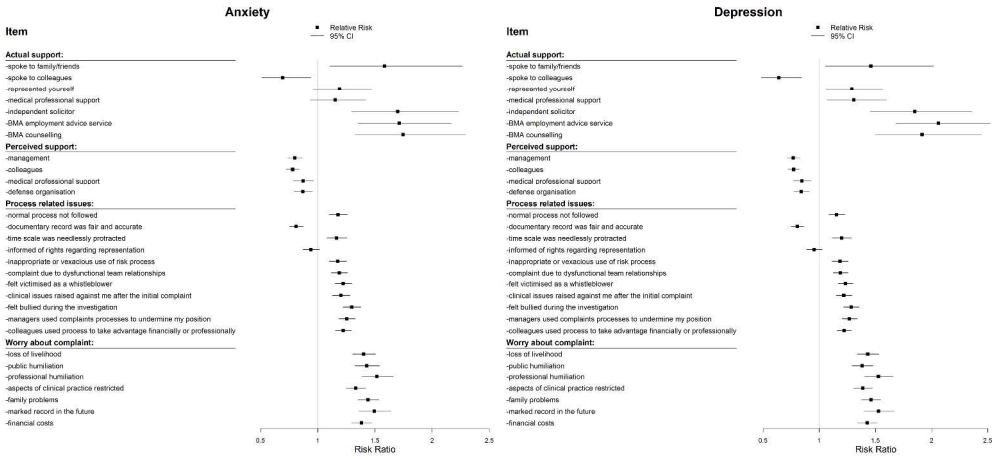
	Relative Risks (95% CI)			
Item	Anxiety	Depression	Hedging	Avoidance
Worrying about the complaint:	–	–	–	–
Loss of livelihood	1.40 (1.30-1.50)	1.43 (1.34-1.53)	1.11 (1.09-1.13)	1.14 (1.12-1.16)
Public humiliation	1.43 (1.33-1.54)	1.38 (1.29-1.48)	1.13 (1.12-1.15)	1.15 (1.12-1.17)
Professional humiliation	1.52 (1.38-1.66)	1.53 (1.40-1.66)	1.14 (1.12-1.16)	1.15 (1.13-1.18)
Aspects of clinical practice restricted	1.33 (1.25-1.42)	1.39 (1.31-1.47)	1.10 (1.08-1.12)	1.14 (1.11-1.16)
Family problems	1.44 (1.35-1.53)	1.46 (1.38-1.55)	1.11 (1.09-1.13)	1.14 (1.12-1.16)
Marked record in the future	1.49 (1.36-1.64)	1.53 (1.40-1.67)	1.13 (1.11-1.16)	1.14 (1.11-1.16)
Financial costs	1.38 (1.29-1.47)	1.43 (1.34-1.52)	1.11 (1.09-1.13)	1.15 (1.13-1.17)

Supplementary material

Table S1. Direct and indirect financial costs in UK pounds associated with a complaint

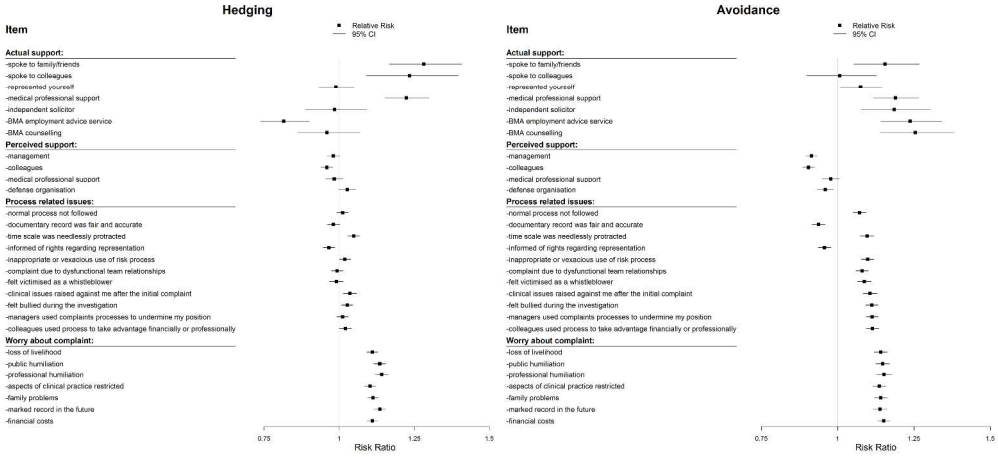
		Missing (%)	Mean (SD)	Median	Min	Max
Direct financial costs	Overall	5324 (86.7 %)	£ 6812.90 (40667.94)	£ 400.00	£ 1.00	£ 1000000.00
	Ongoing/recent complaint	1929 (85.5 %)	£ 9422.77 (59555.97)	£ 500.00	£ 1.00	£ 1000000.00
	Past complaint	3395 (87.3 %)	£ 5072.98 (19721.31)	£ 300.00	£ 1.00	£ 250000.00
Indirect financial costs	Overall	5492 (89.4 %)	£ 62043.16 (204256.15)	£ 5000.00	£ 1.00	£ 3285000.00
	Ongoing/recent complaint	1956 (86.7 %)	£ 65611.29 (239809.67)	£ 5000.0	£ 1.00	£ 3285000.00
	Past complaint	3536 (91.0 %)	£ 58983.31 (168186.74)	£ 3000.00	£ 1.00	£ 1600000.00

Supplementary file 1: The full survey that was sent to physicians



The relative risks (with 95% confidence intervals) for anxiety and depression in relation to actual and perceived support as well as process related issues

592x279mm (300 x 300 DPI)



The relative risks (with 95% confidence intervals) for hedging and avoidance in relation to actual and perceived support as well as process related issues

592x279mm (300 x 300 DPI)

The IMPACT study

1. Consent to participate in the study

This is an electronic form of consent for the study. By ticking the boxes below, you agree to take part in the study.

All information that you provide is ANONYMOUS and CONFIDENTIAL and held in strictest confidence. You will not be asked to provide any information that can be used to identify you nor can you be identified by us by filling in any part of this survey.

1. I consent to the use of my survey results to better understand the impact of complaints and investigations on doctors and their practice.

- ◯ Yes
- ◯ No

2.

3. Demographics

This section will ask you some general questions about you and your background.

2. How old are you?

3. What is your gender?

- ◯ Female
- ◯ Male

4. What is your Marital Status?

5. What is your Ethnic Origin?

6. In which year did you qualify?

7. If you qualified outside the UK, in which year did you come to the UK to practice medicine?

8. If relevant, in which year did you complete your specialist training?

The IMPACT study

9. In which country did you complete your medical training?

10. Where is your principal workplace? (where you spend the majority of your working time)

- [ ] GP surgery
- [ ] Elsewhere in primary care
- [ ] District general hospital
- [ ] University teaching hospital
- [ ] Academic institution
- [ ] Private practice clinic/hospital

Other (please specify)

11. What is your specialty?

Other (please specify)

12. Is your current post

- [ ] Part time
- [ ] Part time - Locum
- [ ] Full time
- [ ] Full time - Locum
- [ ] Self-employed contractor

13. What is your grade?

Other (please specify)

14. How long have you worked in your current post?

4. Informal and formal complaints

The IMPACT study

15. Have you ever been subjected to an informal complaint, formal complaint or serious untoward incident?

- ☐ No
- ☐ Yes, and it is either ongoing or was resolved within the past 6 months
- ☐ Yes, and it was resolved more than 6 months ago

5. About your complaint

16. Please enter how many of each of the following you have had

	0	1	2	3	4	5	6	7	8	9	10+
Informal complaints	○	○	○	○	○	○	○	○	○	○	○
Formal complaints	○	○	○	○	○	○	○	○	○	○	○
Serious untoward incidents	○	○	○	○	○	○	○	○	○	○	○
Referrals to the GMC	○	○	○	○	○	○	○	○	○	○	○

17. If applicable, which complaint or incident had the most impact on you?

Optional comments

18. What was the reason given to you for your complaint / referral to the GMC (if more than one, please select the most serious allegation)?

- ☐ Clinical complaint
- ☐ Clinical performance (i.e. concerns raised about your practice generally)
- ☐ Personal conduct (e.g. dishonesty, affairs with patients)
- ☐ Criminal offence (e.g. dangerous driving, fraud)

19. Where did the complaint come from?

	Yes	No
Trust	☐	☐
Medical colleagues	☐	☐
Patient	☐	☐
Management	☐	☐
Media	☐	☐
Patient group	☐	☐
Other health care professional	☐	☐
Anynomous	☐	☐

20. How long ago was your (most recent) complaint / investigation concluded?

The IMPACT study

21. How long (in months) did the investigation take?

If more than one, please select the most serious allegation

If the investigation is ongoing, please enter the length of time it has taken up to this point

22. If you were referred to the GMC for a procedure, how long did that take (in months)?

If it is still ongoing, please state how long it has taken up to this point

23. How stressful did you find the following aspects of the GMC procedure?

	Extremely stressful	2	Somewhat stressful	4	Not at all stressful	N/A
The initial GMC investigation	◯	◯	◯	◯	◯	◯
The decision to hold a Fitness to Practice hearing	◯	◯	◯	◯	◯	◯
The Fitness to Practice hearing itself	◯	◯	◯	◯	◯	◯
The appeal	◯	◯	◯	◯	◯	◯

24. What was the outcome of the complaint / procedure?

- ☐ No fault / exonerated
- ☐ Retraining imposed
- ☐ Disciplinary action
- ☐ Suspended from practice
- ☐ Struck off from the register
- ☐ The process was not clearly concluded

Other (please specify)

25. At any point during the investigation(s), did you

	Yes	No
Take sick leave	◯	◯
Take unpaid leave	◯	◯
Have supervised practice	◯	◯
Have restrictions placed on your practice	◯	◯
Were you suspended	◯	◯
Did your restrictions also include your private practice (if applicable)	◯	◯

26. How long were you off work in total?

The IMPACT study

27. Please estimate the direct financial costs (e.g. travel, legal fees, etc. in GBP) to you as a result of the investigation (if relevant)

28. Please estimate the indirect financial costs (e.g. loss of earnings, in GBP) to you as a result of the investigation (if relevant)

29. At any point of the inquiry, did you do any of the following

	Yes	No
Speak to family / friends about it	◯	◯
Speak to your colleagues about it	◯	◯
Represent yourself	◯	◯
Access support from a medical professional support organisation	◯	◯
Engage an independent solicitor or barrister	◯	◯
Were your case or the complaint published in the media (including social media)	◯	◯
Access support from the BMA employment advice service	◯	◯
Access support from the BMA counselling / other support organisation	◯	◯

The IMPACT study

30. As a consequence of the inquiry, to what extent do you agree/disagree with the following statements

	Strongly Agree	2	Neutral	4	Strongly Disgree	N/A
The potential consequences of the enquiry were clear to me throughout the process	◯	◯	◯	◯	◯	◯
I clearly understood the process	◯	◯	◯	◯	◯	◯
The process was transparent	◯	◯	◯	◯	◯	◯
Going through the process, I felt that I was assumed guilty until proven otherwise	◯	◯	◯	◯	◯	◯
I felt as if I had been scapegoated	◯	◯	◯	◯	◯	◯
I felt I had no control over what was happening to me	◯	◯	◯	◯	◯	◯
I felt alone in the proceedings	◯	◯	◯	◯	◯	◯
My complaint was primarily related to conflicts with colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my management	◯	◯	◯	◯	◯	◯
I felt well supported by my colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my medical professional support organisation	◯	◯	◯	◯	◯	◯
I felt well supported by my defence organisation	◯	◯	◯	◯	◯	◯
I felt that the complaint was fair	◯	◯	◯	◯	◯	◯
I felt that the complaint was reasonably dealt with	◯	◯	◯	◯	◯	◯
I felt that there were unnecessary delays in the process	◯	◯	◯	◯	◯	◯
I felt my complaint was handled competently	◯	◯	◯	◯	◯	◯
I was worried about the complaint escalating further	◯	◯	◯	◯	◯	◯
I felt that the consequences were proportionate	◯	◯	◯	◯	◯	◯
I felt that the nature of the process was overly punitive	◯	◯	◯	◯	◯	◯
I felt that the complaint was vexatious	◯	◯	◯	◯	◯	◯

The IMPACT study

31. To what extent did the following apply in relation to the process of the complaint or procedure you experienced

	Not at all	2	To some extent	4	Definitely
Normal process was not followed	◯	◯	◯	◯	◯
The documentary record such as minutes produced by the investigative body was fair and accurate	◯	◯	◯	◯	◯
The time scale for the investigation was needlessly protracted	◯	◯	◯	◯	◯
I was kept well informed of when or if I could bring representation to meetings	◯	◯	◯	◯	◯
I believe there was inappropriate or vexacious use of the hospital clinical risk process	◯	◯	◯	◯	◯
I felt the complaint arose because of dysfunctional relationships within the clinical team	◯	◯	◯	◯	◯
I felt victimised because I had been a whistleblower for clinical or managerial failures	◯	◯	◯	◯	◯
Clinical issues were found after the initial complaint and used against me	◯	◯	◯	◯	◯
I felt bullied during the investigation	◯	◯	◯	◯	◯
I felt managers used the process to undermine my position	◯	◯	◯	◯	◯
I felt clinical colleagues used the process to gain an advantage either financially or professionally	◯	◯	◯	◯	◯

Other (please specify)

32. During the inquiry, to what extent were you worried about the following outcomes

	A lot	2	To some extent	4	Not at all
Loss of livelihood	◯	◯	◯	◯	◯
Public humiliation	◯	◯	◯	◯	◯
Professional humiliation	◯	◯	◯	◯	◯
Having aspects of your clinical practice restricted	◯	◯	◯	◯	◯
Family problems	◯	◯	◯	◯	◯
Having a marked record in the future	◯	◯	◯	◯	◯
Financial costs	◯	◯	◯	◯	◯

33. Currently, to what extent do you worry about complaints being made against you?

◯ A great deal / nearly all the time

◯ 2

◯ To some extent

◯ 4

◯ Not at all

The IMPACT study

34. To what extent do you agree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree
Complaints are usually due to bad luck	◯	◯	◯	◯	◯
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	◯	◯	◯	◯	◯
Complaints are caused by litigatious patients	◯	◯	◯	◯	◯
Doctors are hounded by the media	◯	◯	◯	◯	◯
Doctors who receive complaints against them are generally unsuitable to practice medicine	◯	◯	◯	◯	◯
I feel the need to please my colleagues to avoid complaints against me	◯	◯	◯	◯	◯
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	◯	◯	◯	◯	◯
Receiving a complaint would seriously affect my future career prospects	◯	◯	◯	◯	◯
I have considered changing my career because of the high risk of receiving a complaint in my speciality	◯	◯	◯	◯	◯

6. About complaints in general

35. In general, to what extent do you worry about complaints being made against you?

◯ A great deal / nearly all the time

◯ 2

◯ To some extent

◯ 4

◯ Not at all

The IMPACT study

36. To what extent do you agree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree
Complaints are usually due to bad luck	◯	◯	◯	◯	◯
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	◯	◯	◯	◯	◯
Complaints are caused by litigatious patients	◯	◯	◯	◯	◯
Doctors are hounded by the media	◯	◯	◯	◯	◯
Doctors who receive complaints against them are generally unsuitable to practice medicine	◯	◯	◯	◯	◯
I feel the need to please my colleagues to avoid complaints against me	◯	◯	◯	◯	◯
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	◯	◯	◯	◯	◯
Receiving a complaint would seriously affect my future career prospects	◯	◯	◯	◯	◯
I have considered changing my career because of the high risk of receiving a complaint in my speciality	◯	◯	◯	◯	◯

37. To what extent do you agree/disagree with the following statements?

	Strongly Agree	2	Neutral	4	Strongly Disgree
Complaints are primarily related to conflicts with colleagues	◯	◯	◯	◯	◯
If I had a complaint made against me, I am confident that my management would support me	◯	◯	◯	◯	◯
If I had a complaint made against me, I am confident that my colleagues would support me	◯	◯	◯	◯	◯
If I had a complaint made against me, I am confident that my medical professional support organisation would support me	◯	◯	◯	◯	◯
If I had a complaint made against me, I am confident that my defence organisation would support me	◯	◯	◯	◯	◯
Overall, I believe that the complaints process is fair	◯	◯	◯	◯	◯
Overall, I believe that complaints are reasonably dealt with	◯	◯	◯	◯	◯
Overall, I believe that the complaints process is handled competently	◯	◯	◯	◯	◯
Overall, I believe that the consequences are proportionate in the complaints process	◯	◯	◯	◯	◯
Overall, I believe that the complaints process is vexatious	◯	◯	◯	◯	◯
Overall, I believe that the complaints process is overly punitive	◯	◯	◯	◯	◯

7. Medical History

The IMPACT study

38. In the past 12 months, have you suffered from any of the following health conditions or stressors (please tick all that apply)?

- ☐ Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)
- ☐ Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)
- ☐ Depression
- ☐ Anxiety
- ☐ Anger & irritability
- ☐ Other mental health problems
- ☐ Suicidal thoughts
- ☐ Sleep problems / insomnia
- ☐ Marital / relationship problems
- ☐ Frequent headaches
- ☐ Minor colds
- ☐ Recurring respiratory infections

If yes - please specify

39. In the past 12 months, have you experienced any additional life stressors (e.g. bereavement, accident, etc.)

- ○ Yes
- ○ No

If yes please specify

40. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ No

8. Possible legal consequences and professional practice

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

The IMPACT study

41. How often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals than warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters about a patient than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

42. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

The IMPACT study

43. As a result of what you know about the complaints process, have you

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that are considered high risk of complaints	◯	◯
Changed your specialty	◯	◯
Become less likely to take on high-risk cases	◯	◯
Become more likely to abandon a procedure at an early stage	◯	◯
Felt that you have learnt from others' experience and improved your performance as a doctor	◯	◯

Other (please specify)

44. Indicate the extent you feel that any of the following changes would improve the complaints process?

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous internal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

9. Medical History (ii)

The IMPACT study

45. In the past 12 months, have you suffered from any of the following health conditions or stressors (please tick all that applies):

- ☐ Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)
- ☐ Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)
- ☐ Depression
- ☐ Anxiety
- ☐ Anger & irritability
- ☐ Other mental health problems
- ☐ Suicidal thoughts
- ☐ Sleep problems / insomnia
- ☐ Marital / relationship problems
- ☐ Frequent headaches
- ☐ Minor colds
- ☐ Recurring respiratory infections

If yes - please specify

46. In the past 12 months, have you experienced any additional life stressors (e.g. bereavement, accident, etc.)

- ○ Yes
- ○ No

If yes, please specify

47. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ No

10. Legal consequences and professional practice (ii)

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

The IMPACT study

48. How often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals even when this is not warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

49. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Previous experience of complaints about you	◯	◯
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

The IMPACT study

50. As a result of your experience do any of the following apply?

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that led to the complaint	◯	◯
Changed your specialty	◯	◯
Less likely to take on high-risk cases	◯	◯
More likely to abandon a procedure at an early stage	◯	◯
Moved into a non-clinical role	◯	◯
You have become less committed and work strictly to your job description	◯	◯
You have learnt from the experience and improved your performance as a doctor	◯	◯
Left medicine and started a new career	◯	◯
The complaint or the way you were treated was related to discrimination	◯	◯
Retired early	◯	◯
Reduced your hours in the NHS to minimise your time there	◯	◯
Stopped working for the NHS and decided to work only in private practice or practice medicine elsewhere	◯	◯

Other (please specify)

51. Indicate the extent you feel that any of the following changes would improve the process

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous interrnal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and with possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

11. About your complaint (iii)

The IMPACT study

52. Please enter how many of each of the following you have had

	0	1	2	3	4	5	6	7	8	9	10+
Informal complaints	○	○	○	○	○	○	○	○	○	○	○
Formal complaints	○	○	○	○	○	○	○	○	○	○	○
Serious untoward incidents	○	○	○	○	○	○	○	○	○	○	○
Referrals to the GMC	○	○	○	○	○	○	○	○	○	○	○

53. If applicable, which complaint or incident had the most impact on you?

Optional comments

54. What was the reason for your complaint / referral to the GMC (if more than one, please select the most serious allegation)?

- ☐ Clinical complaint
- ☐ Clinical performance (i.e. concerns raised about your practice generally)
- ☐ Personal conduct (e.g. dishonesty, affairs with patients)
- ☐ Criminal offence (e.g. dangerous driving, fraud)

55. Where did the complaint come from?

	Yes	No
Trust	☐	☐
Medical colleagues	☐	☐
Patient	☐	☐
Management	☐	☐
Media	☐	☐
Patient group	☐	☐
Other health care professional	☐	☐
Anonymous	☐	☐

56. How long ago was your (most recent) complaint / investigation concluded?

57. How long (in months) did the investigation take (if more than one, please select the most serious allegation)?

58. If you were referred to the GMC for a process, how long did that take (in months)?

The IMPACT study

59. If applicable, how stressful did you find the following aspects of the GMC process?

	Extremely stressful	2	Somewhat stressful	4	Not at all stressful	N/A
The initial GMC investigation	◯	◯	◯	◯	◯	◯
The decision to hold a Fitness to Practice hearing	◯	◯	◯	◯	◯	◯
The Fitness to Practice hearing itself	◯	◯	◯	◯	◯	◯
The appeal	◯	◯	◯	◯	◯	◯

60. What was the outcome of the complaint / process?

- ☐ No fault / exonerated
- ☐ Retraining imposed
- ☐ Disciplinary action
- ☐ Suspended from practice
- ☐ Struck off from the register
- ☐ The process was not clearly concluded

Other (please specify)

61. At any point during the investigation(s), did you

	Yes	No
Take sick leave	◯	◯
Take unpaid leave	◯	◯
Have supervised practice	◯	◯
Have restrictions placed on your practice	◯	◯
Were you suspended	◯	◯
Did your restrictions also include your private practice (if applicable)	◯	◯

62. How long were you off work in total?

63. Please estimate the direct financial costs (e.g. travel, legal fees, etc. in GBP) to you as a result of the investigation (if relevant)

64. Please estimate the indirect financial costs (e.g. loss of earnings in GBP) to you as a result of the investigation (if relevant)

The IMPACT study

65. At any point of the inquiry, did you

	Yes	No
Speak to family / friends about it	◯	◯
Speak to your colleagues about it	◯	◯
Represent yourself	◯	◯
Access support from a medical professional support organisation	◯	◯
Engage an independent solicitor or barrister	◯	◯
Were your case or the complaint published in the media (including social media)	◯	◯
Access support from the BMA employment advice service	◯	◯
Access support from the BMA counselling / other support organisation	◯	◯

66. As a consequence of the inquiry, to what extent do you agree/disagree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree	N/A
The potential consequences of the enquiry were clear to me throughout the process	◯	◯	◯	◯	◯	◯
I clearly understood the process	◯	◯	◯	◯	◯	◯
The process was transparent	◯	◯	◯	◯	◯	◯
Going through the process, I felt that I was assumed guilty until proven otherwise	◯	◯	◯	◯	◯	◯
I felt as if I had been scapegoated	◯	◯	◯	◯	◯	◯
I felt I had no control over what was happening to me	◯	◯	◯	◯	◯	◯
I felt alone in the proceedings	◯	◯	◯	◯	◯	◯
My complaint was primarily related to conflicts with colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my management	◯	◯	◯	◯	◯	◯
I felt well supported by my colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my medical professional support organisation	◯	◯	◯	◯	◯	◯
I felt well supported by my defence organisation	◯	◯	◯	◯	◯	◯
I felt that the complaint was fair	◯	◯	◯	◯	◯	◯
I felt that the complaint was reasonably dealt with	◯	◯	◯	◯	◯	◯
I felt that there were unnecessary delays in the process	◯	◯	◯	◯	◯	◯
I felt my complaint was handled competently	◯	◯	◯	◯	◯	◯
I was worried about the complaint escalating further	◯	◯	◯	◯	◯	◯
I felt that the consequences were proportionate	◯	◯	◯	◯	◯	◯
I felt that the nature of the process was overly punitive	◯	◯	◯	◯	◯	◯
I felt that the complaint was vexatious	◯	◯	◯	◯	◯	◯

The IMPACT study

67. To what extent did the following apply in relation to the process of the complaint or procedure you experienced?

	Not at all	2	To some extent	4	Definitely
Normal process was not followed	◯	◯	◯	◯	◯
The documentary record such as minutes produced by the investigative body was fair and accurate	◯	◯	◯	◯	◯
The time scale for the investigation was needlessly protracted	◯	◯	◯	◯	◯
I was kept well informed of when or if I could bring representation to meetings	◯	◯	◯	◯	◯
I believe there was inappropriate or vexacious use of the hospital clinical risk process	◯	◯	◯	◯	◯
I felt the complaint arose because of dysfunctional relationships within the clinical team	◯	◯	◯	◯	◯
I felt victimised because I had been a whistleblower for clinical or managerial failures	◯	◯	◯	◯	◯
Clinical issues were found after the initial complaint and used against me	◯	◯	◯	◯	◯
I felt bullied during the investigation	◯	◯	◯	◯	◯
I felt managers used the process to undermine my position	◯	◯	◯	◯	◯
I felt clinical colleagues used the process to gain an advantage either financially or professionally	◯	◯	◯	◯	◯

Other (please specify)

68. During the inquiry, to what extent were you worried about the following outcomes?

	A lot	2	To some extent	4	Not at all
Loss of livelihood	◯	◯	◯	◯	◯
Public humiliation	◯	◯	◯	◯	◯
Professional humiliation	◯	◯	◯	◯	◯
Having aspects of your clinical practice restricted	◯	◯	◯	◯	◯
Family problems	◯	◯	◯	◯	◯
Having a marked record in the future	◯	◯	◯	◯	◯
Financial costs	◯	◯	◯	◯	◯

69. Currently, to what extent do you worry about complaints being made against you?

◯ A great deal / nearly all the time

◯ 2

◯ To some extent

◯ 4

◯ Not at all

The IMPACT study

70. To what extent do you agree with the following statements?

	Definitely agree	2	Neutral	4	Definitely disagree
Complaints are usually due to bad luck	○	○	○	○	○
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	○	○	○	○	○
Complaints are caused by litigatious patients	○	○	○	○	○
Doctors are hounded by the media	○	○	○	○	○
Doctors who receive complaints against them are generally unsuitable to practice medicine	○	○	○	○	○
I feel the need to please my colleagues to avoid complaints against me	○	○	○	○	○
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	○	○	○	○	○
Receiving a complaint would seriously affect my future career prospects	○	○	○	○	○
I have considered changing my career because of the high risk of receiving a complaint in my speciality	○	○	○	○	○

12. Medical History (iii)

71. When you were facing the investigation, did you experience any of the following?

	Improvement	No change	Onset of	Worsening of
Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)	☐	☐	☐	☐
Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)	☐	☐	☐	☐
Depression	☐	☐	☐	☐
Anxiety	☐	☐	☐	☐
Anger & irritability	☐	☐	☐	☐
Other mental health problems	☐	☐	☐	☐
Suicidal thoughts	☐	☐	☐	☐
Sleep problems / insomnia	☐	☐	☐	☐
Relationship problems	☐	☐	☐	☐
Frequent headaches	☐	☐	☐	☐
Minor colds	☐	☐	☐	☐
Recurring respiratory infections	☐	☐	☐	☐

The IMPACT study

72. During the process, did you experience any additional life stressors (e.g. bereavement, accident, etc.)

- ◯ Yes
- ◯ No

If yes please specify

73. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ Yes, during the investigation
- ☐ No

13. Legal consequences and professional practice (iii)

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

74. As a result of your experience, how often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals than warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters about a patient than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

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75. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Previous experience of complaints about you	◯	◯
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

76. As a result of your experience do any of the following apply?

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that led to the complaint	◯	◯
Changed your specialty	◯	◯
Less likely to take on high-risk cases	◯	◯
More likely to abandon a procedure at an early stage	◯	◯
Moved into a non-clinical role	◯	◯
You have become less committed and work strictly to your job description	◯	◯
You have learnt from the experience and improved your performance as a doctor	◯	◯
Left medicine and started a new career	◯	◯
The complaint or the way you were treated was related to discrimination	◯	◯
Retired early	◯	◯
Reduced your hours in the NHS to minimise your time there	◯	◯
Stopped working for the NHS and decided to work only in private practice or practice medicine elsewhere	◯	◯

Other (please specify)

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77. Indicate the extent you feel that any of the following changes would improve the process

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous internal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and with possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

14. PHQ-9 & GAD-7

78. Over the last 2 WEEKS, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	◯	◯	◯	◯
Feeling down, depressed, or hopeless	◯	◯	◯	◯
Trouble falling or staying asleep, or sleeping too much	◯	◯	◯	◯
Feeling tired or having little energy	◯	◯	◯	◯
Poor appetite or overeating	◯	◯	◯	◯
Feeling bad about yourself — or that you are a failure or have let yourself or your family down	◯	◯	◯	◯
Trouble concentrating on things, such as reading the newspaper or watching television	◯	◯	◯	◯
Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	◯	◯	◯	◯
Thoughts that you would be better off dead or of hurting yourself in some way	◯	◯	◯	◯

The IMPACT study

79. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- ◯ Not difficult at all
- ◯ Somewhat difficult
- ◯ Very difficult
- ◯ Extremely difficult

80. Over the last 2 WEEKS, how often have you been bothered by the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge	◯	◯	◯	◯
Not being able to stop or control worrying	◯	◯	◯	◯
Worrying too much about different things	◯	◯	◯	◯
Trouble relaxing	◯	◯	◯	◯
Being so restless that it is hard to sit still	◯	◯	◯	◯
Becoming easily annoyed or irritable	◯	◯	◯	◯
Feeling afraid as if something awful might happen	◯	◯	◯	◯

15. LDI

This scale is intended to estimate your current level of satisfaction with each of the eighteen areas of your life listed below. Please circle one of the numbers (1-7) beside each area. Numbers toward the left end of the seven-unit scale indicate higher levels of dissatisfaction, while numbers toward the right end of the scale indicate higher levels of satisfaction. Try to concentrate on how you currently feel about each area.

81. Please estimate your current level of satisfaction with each of the following areas of your life.

	1 Extremely dissatisfied	2	3	4	5	6 Extremely satisfied
Marriage	◯	◯	◯	◯	◯	◯
Relationship to spouse	◯	◯	◯	◯	◯	◯
Relationship to children	◯	◯	◯	◯	◯	◯
Financial situation	◯	◯	◯	◯	◯	◯
Employment	◯	◯	◯	◯	◯	◯
Recreation/Leisure	◯	◯	◯	◯	◯	◯
Social life	◯	◯	◯	◯	◯	◯
Physical health	◯	◯	◯	◯	◯	◯
Satisfaction with life	◯	◯	◯	◯	◯	◯
Expectations for future	◯	◯	◯	◯	◯	◯

16. Additional information (optional)

The IMPACT study

82. (If relevant) Try to summarise as best you can your experience of the complaints process and how it made you feel

83. (if relevant) What were the most stressful aspects of the complaint?

84. What would you improve in the complaints system?

The IMPACT study

85. Other comments

17. Thank you for taking part in this study

Supplementary material

Imputation

In accordance with the analysis of Bourne et al. (2015), a two-step approach to imputation was used for composite scales (depression, anxiety and hedging). First, the respondent's mean of non-missing items was imputed if at least 80% of the items of the composite scale were non-missing. Second, multiple imputation at the scale level was performed for the remaining respondents. The missing values for avoidance were imputed by imputing the three items of avoidance separately. Multiple imputation was performed by using the fully conditional specification approach, in which a separate imputation model is specified for every variable where missing values are to be imputed. Logistic regression was used for variables with categorical values and predictive mean matching regression for variables with integer values (i.e. hedging, depression and anxiety). All imputation models were performed with 50 iterations and the number of imputations was set to 100. Hence, this resulted in a total of 100 completed datasets. After the imputations, convergence plots were inspected. In addition, in order to see whether the imputed values of the continuous variables were reasonable, density plots of the observed and the imputed data are checked. When the latter yielded no problematic findings, the completed datasets were analysed separately and their results combined using Rubin's Rules (Rubin, 1987).

Sensitivity analysis

As in the previous paper, the last analysis consisted out of a sensitivity analysis to assess the impact of item non-response. For the sensitivity analysis a not missing at random assumption is set for key variables hedging, avoidance, anxiety and depression. We assumed that hedging, avoidance, depression and anxiety were worse when the value was missing.

For anxiety (GAD-7) and depression (PHQ-9), we increased each imputed value by a certain number *d*. This number was obtained in a manner similar-though slightly different-to the method used in the previous paper. A random number δ was first sampled from a normal distribution with mean half of the standard deviation of the distribution of PHQ-9/GAD-7, and the standard deviation the square root of this value. Thereafter, $d=\max(\delta,1)$, which restricts *d* to imply an increase in PHQ-9/GAD-7. Consequently, *d* is added to the imputed value under the missingness at random instead of δ. The newly imputed value is then rounded and bound at the maximum possible value. In that way, an integer number on the original scale is obtained.

For avoidance, missings were assumed to have displayed at least some avoiding behavior. Since the scale is dichotomized prior to the analysis, the actual score on the scale is irrelevant.

Finally, a different method for hedging was used than the one in the previous paper. We opted for a new approach considering that, for this analysis, we used a median split to dichotomize hedging. First, we specified a binomial logistic regression model with hedging as the outcome. The predictors in this model were the same as those used in the imputation model for hedging during MI. This model was fitted using respondents with no missing values for hedging and the linear predictor was calculated for each of the respondents. Thereafter, a random number δ was sampled from a normal distribution with mean half the standard deviation of the distribution of the linear predictor scores and standard deviation the square root of this value. The number *d* was specified in a similar way as in the sensitivity of anxiety in depression, that is $d=\max(\delta,0.2\left(\frac{e^{lp}}{1+e^{lp}}\right))$. Consequently, there is a minimum increase of 20% in the predicted probability on hedging. The logistic model was then fitted using respondents with a missing value for hedging, the linear predictor was calculated and *d* was added to the value of the linear predictor. The inverse logit of the new value of the linear predictor was then calculated to obtain the predicted probability for each of the non-responders. Then, the predicted probability was used in a Bernoulli trial to decide whether the respondent was classified as the lower 50% of hedging or the upper 50%.

Supplementary table 2. Descriptive statistics: Hedging

	Complete cases N (%)	Imputations	Sensitivity Analysis
No hedging	2278 (49.18%)	293917 (47.84%)	273585 (44.53%)
Hedging	2354 (50.82%)	320483 (52.16%)	340815 (55.47%)

Supplementary table 3. Relative Risks, Hedging

Item	RRcc[a] (95% CI)	RRi[b] (95% CI)	RRsa[c] (95% CI)
Actual support:			
-spoke to family/friends	1.32 (1.19-1.46)	1.28 (1.17-1.41)	1,23 (1,12-1,36)
-spoke to colleagues	1.20 (1.05-1.36)	1.23 (1.09-1.40)	1,22 (1,07-1,39)
-represented yourself	0.98 (0.92-1.04)	0.99 (0.93-1.05)	0,99 (0,93-1,05)
-medical professional support	1.24 (1.17-1.33)	1.22 (1.15-1.30)	1,20 (1,13-1,28)
-independent solicitor	1.01 (0.90-1.12)	0.98 (0.89-1.09)	0,98 (0,88-1,10)
-BMA employment advice service	0.79 (0.71-0.88)	0.81 (0.74-0.90)	0,82 (0,73-0,91)
-BMA counselling	0.99 (0.89-1.11)	0.96 (0.86-1.07)	0,95 (0,85-1,07)
Perceived support:			
-management	0.98 (0.96-1.00)	0.98 (0.96-1.00)	0,98 (0,96-1,01)
-colleagues	0.95 (0.93-0.98)	0.96 (0.94-0.98)	0,96 (0,94-0,99)
-medical professional support	0.98 (0.95-1.01)	0.98 (0.95-1.01)	0,99 (0,95-1,02)
-defense organisation	1.03 (1.00-1.06)	1.03 (1.00-1.06)	1,03 (1,00-1,06)
Process related issues:			
-normal process not followed	1.01 (0.99-1.03)	1.01 (0.99-1.03)	1,01 (0,99-1,03)
-documentary record was fair	0.98 (0.95-1.00)	0.98 (0.96-1.00)	0,98 (0,96-1,00)
-time scale was protracted	1.05 (1.03-1.07)	1.05 (1.03-1.07)	1,04 (1,02-1,06)
-informed of bringing representation	0.96 (0.94-0.98)	0.97 (0.95-0.99)	0,97 (0,95-0,99)
-inappropriate use of risk process	1.03 (1.00-1.05)	1.02 (1.00-1.04)	1,01 (1,00-1,03)
-complaint due to dysfunctional team	0.99 (0.97-1.01)	0.99 (0.97-1.01)	0,99 (0,97-1,01)
-felt victimised	0.99 (0.96-1.02)	0.99 (0.97-1.01)	0,99 (0,97-1,01)
-clinical issues after complaint	1.05 (1.02-1.07)	1.04 (1.01-1.06)	1,03 (1,01-1,06)
-felt bullied	1.03 (1.01-1.05)	1.03 (1.01-1.05)	1,02 (1,00-1,04)
-managers undermined position	1.01 (0.99-1.04)	1.01 (0.99-1.03)	1,01 (0,99-1,03)
-colleagues took advantage	1.02 (1.00-1.05)	1.02 (1.00-1.04)	1,02 (1,00-1,04)
Worrying about the complaint:			
-loss of livelihood	1.11 (1.09-1.13)	1.11 (1.09-1.13)	1,10 (1,08-1,12)
-public humiliation	1.14 (1.12-1.16)	1.13 (1.12-1.15)	1,12 (1,10-1,14)
-professional humiliation	1.15 (1.12-1.17)	1.14 (1.12-1.16)	1,12 (1,10-1,15)
-practice restricted	1.10 (1.08-1.12)	1.10 (1.08-1.12)	1,09 (1,07-1,11)
-family problems	1.12 (1.10-1.14)	1.11 (1.09-1.13)	1,10 (1,08-1,12)
-marked record	1.14 (1.12-1.17)	1.13 (1.11-1.16)	1,12 (1,10-1,14)
-financial costs	1.11 (1.09-1.14)	1.11 (1.09-1.13)	1,10 (1,08-1,12)

[a] RRcc = relative risks when only using complete cases
[b] RRi = relative risks when imputed datasets are used
[c] RRsa = relative risks under the not missing at random assumption

Supplementary table 4. Descriptive Statistics avoidance

	Complete cases N (%)	Imputations	Sensitivity Analysis
No avoidance	2535 (54.32%)	322110 (52.43%)	253500 (41.26%)
Avoidance	2132 (45.68%)	292290 (47.57%)	360900 (58.74%)

Supplementary table 5. Relative Risk's, avoidance

Item	RRcc (95% CI)	RRi (95% CI)	RRsa (95% CI)
Actual support:			
-spoke to family/friends	1.13 (1.02-1.24)	1.15 (1.05-1.27)	1.08 (1.01-1.15)
-spoke to colleagues	0.97 (0.86-1.09)	1.01 (0.90-1.13)	1.00 (0.92-1.09)
-represented yourself	1.08 (1.01-1.15)	1.07 (1.01-1.15)	1.03 (0.98-1.08)
-medical professional support	1.19 (1.11-1.28)	1.19 (1.12-1.27)	1.13 (1.07-1.18)
-independent solicitor	1.20 (1.08-1.33)	1.19 (1.08-1.30)	1.13 (1.05-1.22)
-BMA employment advice service	1.25 (1.15-1.36)	1.24 (1.14-1.34)	1.12 (1.05-1.19)
-BMA counselling	1.29 (1.17-1.43)	1.25 (1.14-1.38)	1.15 (1.07-1.24)
Perceived support:			
-management	0.91 (0.89-0.94)	0.91 (0.89-0.93)	0.95 (0.93-0.96)
-colleagues	0.90 (0.88-0.92)	0.90 (0.89-0.92)	0.94 (0.93-0.96)
-medical professional support	0.98 (0.95-1.01)	0.98 (0.95-1.01)	0.99 (0.97-1.01)
-defense organisation	0.96 (0.93-0.99)	0.96 (0.93-0.99)	0.98 (0.96-1.00)
Process related issues:			
-normal process not followed	1.08 (1.06-1.11)	1.07 (1.05-1.09)	1.04 (1.03-1.06)
-documentary record was fair	0.93 (0.91-0.95)	0.94 (0.92-0.96)	0.96 (0.94-0.98)
-time scale was protracted	1.11 (1.09-1.14)	1.10 (1.07-1.12)	1.06 (1.04-1.07)
-informed of bringing representation	0.95 (0.93-0.98)	0.96 (0.94-0.98)	0.97 (0.96-0.99)
-inappropriate use of risk process	1.11 (1.09-1.13)	1.10 (1.08-1.12)	1.06 (1.04-1.07)
-complaint due to dysfunctional team	1.09 (1.07-1.11)	1.08 (1.06-1.10)	1.05 (1.03-1.06)
-felt victimised	1.10 (1.08-1.13)	1.09 (1.07-1.11)	1.06 (1.04-1.07)
-clinical issues after complaint	1.14 (1.11-1.16)	1.11 (1.08-1.13)	1.07 (1.06-1.09)
-felt bullied	1.13 (1.11-1.15)	1.11 (1.09-1.13)	1.07 (1.06-1.09)
-managers undermined position	1.13 (1.11-1.15)	1.11 (1.09-1.13)	1.07 (1.06-1.08)
-colleagues took advantage	1.13 (1.11-1.16)	1.11 (1.09-1.14)	1.07 (1.06-1.09)
Worrying about the complaint:			
-loss of livelihood	1.15 (1.13-1.17)	1.14 (1.12-1.16)	1.09 (1.07-1.10)
-public humiliation	1.15 (1.13-1.18)	1.15 (1.12-1.17)	1.09 (1.08-1.11)
-professional humiliation	1.16 (1.13-1.19)	1.15 (1.13-1.18)	1.09 (1.07-1.11)
-practice restricted	1.14 (1.12-1.16)	1.14 (1.11-1.16)	1.08 (1.07-1.10)
-family problems	1.15 (1.13-1.17)	1.14 (1.12-1.16)	1.08 (1.07-1.10)
-marked record	1.14 (1.12-1.17)	1.14 (1.11-1.16)	1.08 (1.06-1.10)
-financial costs	1.16 (1.14-1.18)	1.15 (1.13-1.17)	1.09 (1.08-1.11)

Supplementary table 6. Descriptive Statistics depression

	Complete cases N (%)	Imputations	Sensitivity Analysis
No depression	4171 (87.11%)	184614 (81.80%)	181793 (80.55%)
Depression	617 (12.89%)	41086 (18.20%)	43907 (19.45%)

Supplementary table 7. Relative Risks, depression

Item	RRcc (95% CI)	RRi (95% CI)	RRsa (95% CI)
Actual support:			
-spoke to family/friends	1.54 (1.10-2.16)	1.46 (1.06-2.02)	1.42 (1.04-1.96)
-spoke to colleagues	0.58 (0.44-0.76)	0.64 (0.48-0.84)	0.64 (0.49-0.84)
-represented yourself	1.31 (1.07-1.60)	1.29 (1.06-1.57)	1.27 (1.05-1.54)
-medical professional support	1.34 (1.09-1.64)	1.31 (1.07-1.60)	1.29 (1.06-1.57)
-independent solicitor	1.91 (1.50-2.44)	1.85 (1.45-2.36)	1.82 (1.44-2.30)
-BMA employment advice service	2.14 (1.74-2.64)	2.06 (1.68-2.52)	1.99 (1.62-2.43)
-BMA counselling	2.06 (1.62-2.62)	1.91 (1.50-2.44)	1.87 (1.47-2.37)
Perceived support:			
-management	0.74 (0.68-0.81)	0.77 (0.71-0.83)	0.77 (0.72-0.83)
-colleagues	0.75 (0.70-0.80)	0.77 (0.72-0.83)	0.78 (0.73-0.83)
-medical professional support	0.84 (0.76-0.92)	0.84 (0.77-0.93)	0.84 (0.77-0.92)
-defense organisation	0.82 (0.76-0.90)	0.84 (0.77-0.91)	0.84 (0.77-0.91)
Process related issues:			
-normal process not followed	1.16 (1.09-1.24)	1.15 (1.08-1.23)	1.15 (1.08-1.22)
-documentary record was fair	0.77 (0.72-0.83)	0.80 (0.75-0.86)	0.80 (0.75-0.86)
-time scale was protracted	1.20 (1.12-1.29)	1.20 (1.12-1.29)	1.19 (1.11-1.28)
-informed of bringing representation	0.95 (0.88-1.02)	0.96 (0.89-1.03)	0.95 (0.89-1.02)
-inappropriate use of risk process	1.20 (1.13-1.28)	1.18 (1.11-1.26)	1.18 (1.11-1.25)
-complaint due to dysfunctional team	1.23 (1.16-1.30)	1.19 (1.12-1.25)	1.18 (1.12-1.25)
-felt victimised	1.28 (1.21-1.35)	1.23 (1.17-1.30)	1.23 (1.16-1.29)
-clinical issues after complaint	1.30 (1.23-1.37)	1.22 (1.15-1.29)	1.22 (1.15-1.28)
-felt bullied	1.32 (1.25-1.40)	1.28 (1.22-1.35)	1.27 (1.21-1.34)
-managers undermined position	1.32 (1.25-1.39)	1.27 (1.20-1.34)	1.26 (1.20-1.32)
-colleagues took advantage	1.27 (1.21-1.34)	1.22 (1.16-1.29)	1.22 (1.15-1.28)
Worrying about the complaint:			
-loss of livelihood	1.43 (1.34-1.53)	1.43 (1.34-1.53)	1.40 (1.31-1.50)
-public humiliation	1.40 (1.30-1.50)	1.38 (1.29-1.48)	1.36 (1.27-1.45)
-professional humiliation	1.58 (1.44-1.72)	1.53 (1.40-1.66)	1.48 (1.37-1.61)
-practice restricted	1.40 (1.31-1.49)	1.39 (1.31-1.47)	1.35 (1.28-1.44)
-family problems	1.48 (1.39-1.57)	1.46 (1.38-1.55)	1.43 (1.35-1.52)
-marked record	1.56 (1.42-1.72)	1.53 (1.40-1.67)	1.47 (1.35-1.61)
-financial costs	1.45 (1.36-1.55)	1.43 (1.34-1.52)	1.40 (1.31-1.48)

Supplementary table 8. Descriptive Statistics anxiety

	Complete cases N (%)	Imputations	Sensitivity Analysis
No anxiety	4273 (89.08%)	189057 (83.76%)	187169 (82.93%)
Anxiety	524 (10.92%)	36643 (16.24%)	38531 (17.07%)

Supplementary table 9. Relative Risks, anxiety

Item	RRcc (95% CI)	RRi (95% CI)	RRsa (95% CI)
Actual support:			
-spoke to family/friends	1.57 (1.09-2.24)	1.58 (1.11-2.26)	1.56 (1.09-2.22)
-spoke to colleagues	0.62 (0.46-0.84)	0.69 (0.51-0.94)	0.70 (0.52-0.95)
-represented yourself	1.20 (0.97-1.50)	1.19 (0.96-1.47)	1.18 (0.95-1.46)
-medical professional support	1.08 (0.88-1.34)	1.15 (0.93-1.42)	1.14 (0.93-1.41)
-independent solicitor	1.88 (1.44-2.45)	1.70 (1.29-2.23)	1.70 (1.31-2.21)
-BMA employment advice service	1.75 (1.38-2.22)	1.71 (1.35-2.17)	1.69 (1.33-2.13)
-BMA counselling	1.88 (1.42-2.47)	1.74 (1.33-2.29)	1.71 (1.31-2.25)
Perceived support:			
-management	0.78 (0.72-0.85)	0.80 (0.74-0.87)	0.80 (0.74-0.87)
-colleagues	0.76 (0.71-0.82)	0.78 (0.73-0.84)	0.79 (0.73-0.84)
-medical professional support	0.87 (0.78-0.96)	0.87 (0.79-0.96)	0.87 (0.79-0.96)
-defense organisation	0.87 (0.79-0.95)	0.87 (0.79-0.95)	0.87 (0.80-0.95)
Process related issues:			
-normal process not followed	1.20 (1.13-1.29)	1.18 (1.10-1.26)	1.17 (1.10-1.25)
-documentary record was fair	0.78 (0.72-0.85)	0.81 (0.75-0.87)	0.81 (0.76-0.88)
-time scale was protracted	1.19 (1.10-1.28)	1.16 (1.08-1.26)	1.16 (1.08-1.25)
-informed of bringing representation	0.94 (0.86-1.02)	0.94 (0.87-1.02)	0.94 (0.87-1.01)
-inappropriate use of risk process	1.19 (1.11-1.28)	1.17 (1.10-1.25)	1.17 (1.10-1.25)
-complaint due to dysfunctional team	1.22 (1.15-1.30)	1.19 (1.12-1.26)	1.18 (1.11-1.25)
-felt victimised	1.27 (1.19-1.35)	1.22 (1.15-1.30)	1.22 (1.15-1.29)
-clinical issues after complaint	1.27 (1.19-1.35)	1.20 (1.13-1.28)	1.20 (1.13-1.27)
-felt bullied	1.33 (1.25-1.42)	1.30 (1.22-1.38)	1.29 (1.22-1.36)
-managers undermined position	1.30 (1.23-1.38)	1.25 (1.18-1.33)	1.25 (1.18-1.32)
-colleagues took advantage	1.26 (1.19-1.34)	1.22 (1.15-1.30)	1.22 (1.15-1.29)
Worrying about the complaint:			
-loss of livelihood	1.40 (1.30-1.50)	1.40 (1.30-1.50)	1.38 (1.29-1.48)
-public humiliation	1.45 (1.34-1.56)	1.43 (1.33-1.54)	1.40 (1.30-1.51)
-professional humiliation	1.53 (1.39-1.68)	1.52 (1.38-1.66)	1.48 (1.36-1.62)
-practice restricted	1.33 (1.24-1.42)	1.33 (1.25-1.42)	1.32 (1.23-1.40)
-family problems	1.44 (1.35-1.54)	1.44 (1.35-1.53)	1.42 (1.34-1.51)
-marked record	1.50 (1.36-1.66)	1.49 (1.36-1.64)	1.46 (1.33-1.61)
-financial costs	1.40 (1.31-1.50)	1.38 (1.29-1.47)	1.36 (1.28-1.45)

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Doctors' perception of support and the processes involved in complaints investigations and how these relate to welfare and defensive practice: a cross sectional survey of UK physicians

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Paper:

Doctors' perception of support and the processes involved in complaints investigations and how these relate to welfare and defensive practice: a cross sectional survey of UK physicians

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Abstract

Objective How adverse outcomes and complaints are managed may significantly impact on physician wellbeing and practice. We aimed to investigate how depression, anxiety and defensive medical practice are associated with doctors actual and perceived support, behaviour of colleagues and process issues regarding how complaints investigations are carried out.

Design A survey study. Respondents were classified into three groups: no complaint, recent/current complaint (within 6 months) or past complaint. Each group completed specific surveys.

Setting British Medical Association (BMA) members were invited to complete an online survey.

Participants 95,636 members of the BMA were asked to participate. 7926(8.3%) completed the survey of whom 1780(22.5%) had no complaint, 3887 (49.1%) a past complaint and 2257(28.5%) a recent/current complaint. We excluded those with no complaints leaving 6144 in the final sample.

Primary outcomes measures We measured anxiety and depression using the generalized anxiety disorder scale (GAD-7) and physical health questionnaire (PHQ-9). Defensive practice was assessed using a new measure for avoidance and hedging.

Results Most felt supported by colleagues (61%), only 31% felt supported by management. Not following process (56%), protracted timescales (78%), vexatious complaints (49%), feeling bullied (39%), or victimised for whistleblowing (20%), and using complaints to undermine (56%) were reported. Perceived support by management (RR depression:0.77,

95% CI 0.71-0.83 RR anxiety:0.80, 95% CI 0.74-0.87), speaking to colleagues (RR:0.64, 95% CI 0.48-0.84 and RR:0.69, 95% CI 0.51-0.94 respectively), fair/accurate documentation (RR depression:0.80, 95% CI 0.75-0.86; RR anxiety:0.81, 95% CI 0.75-0.87), and being informed about rights, correlated positively with wellbeing and reduced defensive practice. Doctors worried most about professional humiliation following a complaint investigation (80%).

Conclusions Poor process, prolonged timescales, and vexatious use of complaints systems are associated with decreased psychological welfare and increased defensive practice. In contrast perceived support from colleagues and management is associated with a reduction in these effects.

Strengths and limitations of this study

Strengths

- A large number of physicians responded (10,930) and 6,144 who had experienced a complaint completed the survey.
- Aspects of mental distress have been documented using validated questionnaires.
- We guaranteed to doctors filling in the survey that their responses were anonymous and untraceable; as a result we feel respondents would have been more likely to be honest and open with their opinions.

Limitations

- As we asked about past complaints, recall bias should be considered when interpreting the responses.
- The overall response rate of 11.4% means that ascertainment bias must be considered when looking at the results, although it should also be borne in mind that those most effected by a complaints process may have avoided taking part in the

survey and doctors who have changed profession or been erased from the register would not have been included in the survey.

Introduction

We have previously reported on the impact of complaints procedures on the welfare, health and clinical practice of doctors in the United Kingdom (UK)[1]. In this cross-sectional survey study we used validated questionnaires to show doctors who had received a recent complaint were twice as likely to report suicidal thoughts, 77% more likely to suffer moderate to severe depression and had twice the risk of moderate to severe anxiety compared to those with no history of a complaint. The association was strongest when a complaint involved a referral to the UK regulator (the GMC). Doctors with a recent or current complaint also reported increased sleep difficulties, anger and irritability, and relationship problems. We further found that 80% of doctors who responded to the survey practised medicine more defensively following complaints against themselves or colleagues. This involved "hedging", which includes performing more tests than necessary, over-referral, and overprescribing as well as "avoidance" which includes avoiding procedures, not accept high-risk patients or abandoning procedures early. We have also reported qualitative data on doctor's experiences of complaints[2]. Physicians described feeling emotionally distressed; powerless, fearful of the consequences, unsupported, and that their complaint was unfair. They reported that significant stressors were the unpredictability and prolonged duration of procedures, incompetence and poor communication by managers and a feeling that processes are biased in favor of complainants. Many said they practiced defensively, limited their practice or changed career after a complaint. Very few physicians reported positive outcomes from complaints investigations.

In December 2015, Verhoef and colleagues[3] carried out a semi-structured interview study on the impact of disciplinary processes on doctors in the Netherlands. They found that disciplinary processes can have a profound psychological and professional impact and that

the time taken to carry out an investigation was a main contributing factor. In a study published in the British Medical Journal, Jain and Ogden[4] described the impact of patient complaints on general practitioners in the United Kingdom and reported an association with anger, depression and suicide. It is important to note that they also described clinicians involved in complaints practicing medicine more defensively.

Others have also warned of the unintended consequences of regulation; McGivern and Fischer have argued that regulation is often focused on high profile cases that promote the view that more regulation is required[5]. This approach fails the "invisible majority" of doctors who have never been accused of malpractice but who nevertheless become anxious about regulation and engage in defensive practice.

Recently Reisch and colleagues[6], in a survey of breast pathologists, reported that over 80% ordered additional tests in response to malpractice fears, recommended additional surgical sampling, or asked for further opinions. The authors concluded that these defensive practices have important implications for cost and for patient-safety. The data of Studdart et al[7] support these findings, they found that 93% of doctors practiced defensively in high liability environments, 43% of these ordered imaging when it was not necessary and 42% had restricted their practice in the previous three years to reduce their exposure to perceived risk.

Litigation, complaints and investigations are part of the processes that are designed to protect patients and maintain appropriate clinical standards. However, the burden and stress associated with these processes are clearly having unintended consequences and it may be argued that when examined as a whole, these structures may be causing more harm to patient care than good. Whilst the regulatory system may protect patients from the misconduct of a relatively small number of doctors, it has a perverse effect on the majority

of doctors who become preoccupied by defensive practice.

In our previous paper on the impact of complaints on doctors we reported on the association between complaints procedures and doctors' wellbeing[1]. We did not examine what aspects of the complaints processes or the behaviour of colleagues impacts either positively or negatively on doctor's wellbeing and health. This would be of interest as this information could then be used to amend processes to make them less damaging.

In this paper we investigate whether depression, anxiety and defensive medical practice is associated with the support that is sought by doctors during complaints processes, their perceived support, the behaviour of colleagues as well as factors relating to complaints processes. Our expectation was that support from management and colleagues would ameliorate the impact of complaints processes. Conversely we expected examples of poor process and behaviour would be associated with a negative effect of doctor's wellbeing and increase defensive practice.

Methods

Design and participants

The British Medical Association (BMA) is the trade union and professional body representing 170,000 doctors in the UK. Membership is voluntary. In November 2012, we invited 95 636 members of the BMA, who had previously consented to take part in research to participate in the study. We sent them an email containing an information sheet describing the study and a link to an encrypted online questionnaire using Survey Monkey. We guaranteed to the participants that their responses would be both anonymous and untraceable, all consented to take part before starting the questionnaire.

The survey was open for two weeks during which time three reminders were sent out. In total, 10 930 (11.4%) doctors responded. Of those, we excluded 696 (6.4%) because they completed the demographics section only, and 121 (1.1%) as a technical error led to them being given incorrect sections to fill in. In total, 7926 (72.5%) doctors completed the survey of whom 1380 did not fill in some sections but we included them in the full analysis. Of the 7926 participants, 1780 (22.5%) had no complaint, 3889 (49.1%) had a past complaint and 2257 (28.5%) had a recent/current complaint. Participants with no complaints were excluded from this analysis relating to the experience of complaints processes as well as participants who did not answer any of the questions on the process, leaving us with 6144 participants in the final sample, of which 63% had a past complaint and 37% had a recent or current complaint. We compared our study population to the characteristics of the entire BMA database to see if our cohort of members was representative. We found our population was similar in relation to gender, but slightly older with more consultants and GP's and fewer from ethnic minorities compared to the BMA database. Details of this comparison can be found in table 1.

The different types of complaint or investigation that were considered in the study are described below and the breakdown of the number of each complaint type is listed in table 2:

Informal (21%): this involves the complainant talking directly to the individual concerned about their complaint. If not resolved locally it can be escalated.

Formal (50%): this is a written complaint, most often to the chief executive or an organization that required an investigation to be carried out and a written response given. The outcome may be that disciplinary action or referral to the GMC by an employer ensues.

Serious Untoward Incident (SUI) (12%): an SUI generally relates to a poor clinical outcome, unexpected death or threat to public health. However it may also occur if an event may damage the reputation or lead to a lack of confidence in a service. Such an investigation must be both commissioned and undertaken independently of the care that the investigation is considering. Again the outcome may lead to a recommendation for disciplinary action or referral to the regulator (the GMC).

General Medical Council (14%): a complaint about a doctor can be made to the GMC not only for concerns about their clinical practice, but also their personal behaviour. The GMC can suspend doctors from work whilst they investigate them, issue warnings and undertakings, restrict a doctor's practice or make them work under supervision, suspend them or permanently strike them off the medical register and prevent them from working.

The survey

We used a cross-sectional survey design where participants were streamed into three groups: current/recent complaint (on-going or resolved within the last 6 months), past complaint (resolved more than 6 months ago) and no complaints (not included in this

analysis). Each group completed a slightly different version of the questionnaire. Participants in the current complaints and no complaints group were asked about their current mood and health whereas the past complaints group were also asked to respond about their mood and health at the time of the complaint. We trialled the questions on process on 20 doctors of different grade and specialty and incorporated their feedback into the questionnaire design. We have included the questionnaire as supplementary online information (see online supplementary file 1). Further information on the questionnaire can be found in Bourne et al. (2015)[1]. We estimate that the time required to fill in the entire questionnaire was thirty minutes.

Measures

Complaints exposure and process

We asked physicians 75 questions about their complaint(s), whether it had occurred in the past or was current. We generated the questions from the pilot study and also from Bark and colleagues[7]. These included why the complaint had occurred, who made it, how long the process went on for, the outcome and estimated direct and indirect costs as well as support sought and obtained. Whilst the majority of the questions used a 5-point scale, some questions were qualitative and a few were yes/no.

Support sought by doctors during complaints processes

Eight questions were asked about what support was sought by doctors during the complaints process. Each question related to support from a different source and an option was given to answer yes or no.

Perceived support

Agreement with fifteen statements on perceived support was measured using a 5-point scale from “strongly agreed” to “strongly disagreed”. Respondents were also able to mark the questions on perceived support as “not applicable”.

Worrying about outcome

Seven possible outcomes were listed in the survey and doctors were asked to what extent they were worried about them ranging on a 5-point scale from “not at all” to “a lot”.

Factors relating to complaints processes and behaviour of colleagues

Issues about the process followed and colleagues’ behaviour in relation to the complaint were assessed using eleven statements. The doctor was asked to what extent these applied on a 5-point scale from “not at all” to “definitely”.

Depression and anxiety

Current depression was assessed using the *Physical Health Questionnaire* (PHQ-9)[8,9]. Respondents with a score ≥10 were considered depressed. We used the *Generalized Anxiety Disorder* scale (GAD-7)[10] to assess current anxiety, and respondents were considered to be anxious if they had a score ≥10. Both are well-validated and standardised measures of symptom severity of depression and anxiety respectively.

Defensive medical practice

Following a review of the literature, we developed twenty items to measure defensive medical practice[6,11,12]. Twelve further items were developed from the pilot study. These were rated either with a yes/no response or on a 5-point scale. After carrying out an exploratory factor analysis, two underlying factors were identified. The first related to carrying out too many investigations and being over cautious regarding the management of patients – we called this “hedging” and was measured on a scale from 0 to 36 (9 items, for

example “carried out more tests than necessary”, “referred patient for second opinion more than necessary” and “admitted patients to the hospital when the patient could have been discharged home safely or managed as an outpatient”, Cronbach’s α=0.92). The second factor we called “avoidance” as it related to avoiding some areas of practice, this was measured on a scale from 0 to 12 (3 items, “stopped doing aspects of my job”, “not accepting high risk patients in order to avoid possible complications”, and “avoiding a particular type of invasive procedure”, Cronbach’s α=0.77).

Avoidance was dichotomized as never displaying avoidance behaviour and displaying at least some avoidance behaviour. Approximately half of the respondents (54%) never displayed avoidance behaviour. There were few respondents (16%) that never displayed hedging behaviour, therefore we decided to use a median split to dichotomize hedging. A score below the median (<10) would then indicate that the respondent never or seldom engaged in hedging, whilst a score above the median (≥10) would indicate that the respondent sometimes or often engaged in hedging behaviour.

Statistical analysis

To analyse associations with defensive practice, only doctors with an ongoing/recent complaint (n=2257) and doctors with a past complaint (n=3887) were included. For the analysis on depression and anxiety, only doctors with an ongoing/recent complaint were included since there are too many confounding variables that could have influenced the current level of depression or anxiety of doctors with a past complaint.

The outcome variables (depression, anxiety, avoidance, hedging) were dichotomized as described above. To examine relationships with the outcome variables, a Poisson regression analysis with robust error variance was used to estimate relative risks[13]. When using items of perceived support, we withheld the possible answer "not applicable" from the analyses since this did not convey any information on levels of perceived support. Relative risks were visualized using forest plots. No significance testing was used, results were presented with 95% confidence intervals to quantify the uncertainty. We assessed whether relationships varied with the type or timing of the complaint using interaction terms. We used the dependent false discovery rate procedure as a guide to explore potentially relevant interaction terms[14]. The procedure was used once for type of complaint (116 interaction terms), and once for timing of complaint (58 interaction terms), both using a 5% alpha level.

As is typical in survey research, we observed item non-response. To be consistent with our previous analysis[1], missing data was addressed using multiple stochastic imputation (MI). Using this approach, missing values were replaced by 100 plausible values leading to 100 completed datasets. Replacing missing values multiple times represents the uncertainty about the imputed values (see supplementary file S2).

A sensitivity analysis was then performed to assess the impact of item non-response by comparing the results of complete case analysis to results after MI, which assumes

'missingness at random'. In addition, a second MI analysis was performed assuming 'missingness not at random' for the outcome variables because these are based on sensitive questions. It is plausible respondents with missing data might have been more anxious or depressed, or more likely to display hedging or avoidance (see supplementary file S2). Results for the complete case analysis for MI based on missingness at random and for MI based on missingness not at random were similar, hence we only report results for standard MI (assuming missingness at random). SAS was used for the data analysis (V.9.4, SAS Institute, Cary, North Carolina, USA). MIs were performed using the mice package[15] in R[16].

Results

Descriptive statistics

Detailed information on the descriptive statistics of items assessing different aspects of actual support, perceived support, process related issues and worry about the consequences of a complaint are seen in table 3. Most physicians discussed their complaint with family, friends, or colleagues.

Perceived support: The majority (61%) felt supported by their colleagues, whereas only 31% reported they felt supported by management.

Process issues: 56% said normal process was not followed. For example 78% indicated that the timescale was needlessly protracted, 27% did not feel they were informed about representation, and 17% thought the documentary record was not fair and accurate.

Behaviour: 20% felt victimized for being a whistle-blower and 39% reported being bullied during the investigation. Inappropriate or vexatious abuse of the complaints system was reported by 49% of physicians, 32% felt managers used a complaint to undermine them, and 24% reported colleagues used a complaint to take advantage either financially or professionally.

Most respondents worried about the consequences of the complaint. The most common concerns were professional or public humiliation (80% and 70% respectively) and having a marked record in the future (79%).

Psychological welfare and health

The relative risks for associations with depression and anxiety are presented in table 3 and figure 1.

Actual and perceived support

Depression and anxiety were more common amongst doctors who reported speaking to family or friends about their complaint (RR depression: 1.46, 95% CI 1.06-2.02; RR anxiety: 1.58, 95% CI 1.11-2.26), when they engaged independent legal advice (RR depression: 1.85, 95% CI 1.45-2.36; RR anxiety: 1.70, 95% CI 1.29-2.23), accessed support from the BMA employment advice service (RR depression: 2.06, 95% CI 1.68-2.52; RR anxiety: 1.71, 95% CI 1.35-2.17), or BMA counselling service (RR depression: 1.91, 95% CI 1.50-2.44; RR anxiety: 1.74, 95% CI 1.33-2.29). The risk ratios for both depression and anxiety were lowest when doctors reported they had spoken to their colleagues (RR: 0.64, 95% CI 0.48-0.84; and RR: 0.69, 95% CI 0.51-0.94 respectively).

Perceived support from management was associated with a less depression and anxiety (RR depression: 0.77, 95% CI 0.71-0.83; RR anxiety: 0.80, 95% CI 0.74-0.87). The perception of support from medical professional organizations, and defence organizations also related to lower rates of depression and anxiety (RRs depression: 0.84 for both items; RRs anxiety: 0.87 for both items).

Process related issues: When the timescale for a complaints investigation was protracted this was associated with greater anxiety and depression (RR: 1.16, 95% CI 1.08-1.26; and RR: 1.20, 95% CI 1.12-1.29 respectively). Perceiving that normal process was not being followed was also associated with increased anxiety (RR: 1.18, 95% CI 1.10-1.26) and depression (RR: 1.15, 95% CI 1.08-1.23). Conversely feeling the documentary record was fair and accurate was related to less depression and anxiety (RR depression: 0.80, 95% CI 0.75-0.86; RR anxiety: 0.81, 95% CI 0.75-0.87).

Behavioural issues: Feeling bullied, victimised as a whistle-blower, and perceiving colleagues or management were taking advantage of the situation were associated with higher rates of depression and anxiety (RRs 1.15-1.28 for depression; and 1.16-1.30 for anxiety).

Worrying about the consequences of the complaint: The more doctors were worried about the consequences of the complaint, the higher the reported depression and anxiety (RRs: 1.38-1.53 for depression and 1.33-1.52 for anxiety).

Defensive practice

The relative risks for hedging and avoidance are presented in table 4 and figure 2. There were clear differences in results for hedging and avoidance.

Actual and perceived support

Hedging was greatest when doctors spoke to family or friends (RR: 1.28, 95% CI 1.17-1.41), spoke to colleagues (RR: 1.23, 95% CI 1.09-1.40), and when they accessed help from medical professional support organizations (RR: 1.22, 95% CI 1.15-1.30). No clear relationships were found between perceived support and hedging. Generally, process related issues were not strongly associated with hedging although a protracted timescale for a complaints process was a factor (RR: 1.05, 95% CI 1.03-1.07)

Avoidance related positively to most aspects of actual support (RRs: 1.01-1.25), but was lower when doctors perceived they were well supported by their management (RR: 0.91, 95% CI 0.89-0.93) or colleagues (RR: 0.90, 95% CI 0.89-0.92).

Process related issues and worrying about the consequences of the complaint

Whilst process related issues were not strongly related to hedging, avoidance behaviour (e.g. abandoning procedures early) was more common when negative process or behavioural

issues were reported (RR: 1.07-1.11). Conversely positive process issues (e.g. being well-informed about representation) were related to lower rates of avoidance.

Worrying about the consequences of the complaint was related to higher rates of hedging and avoidance (RRs: 1.10-1.14 for hedging; and 1.14-1.15 for avoidance).

Interactions with type of complaint and recent/past complaint

We have no evidence that relationships with the outcome variables depend on type or timing of complaint based on the dependent false discovery rate procedure. Details of these results are given in supplementary file S2.

Discussion

We have shown that there are a number of factors relating to complaints processes and how they are managed that are associated with the wellbeing of doctors involved as well as the likelihood of them practicing defensive medicine. Our data suggest that how doctors respond to complaints is associated with their perception of the fairness of the process used to investigate them and the behaviour of colleagues involved. The relative risk of anxiety and depression was increased when doctors reported the timescale of a complaint was protracted, processes were not followed or used inappropriately and managers or colleagues used complaints processes to their advantage. Importantly, psychological morbidity increased when complaints were associated with a dysfunctional team, whistleblowing and bullying. Conversely, evidence of good process such as being kept well-informed and accurate minute taking was associated with improved psychological welfare and less defensive practice. Feeling supported by colleagues was associated with the greatest positive impact.

A strength of the study is that to our knowledge, this is the largest study relating to this subject in the UK with responses from over 6000 doctors. A further important factor is that we guaranteed that all responses would be anonymous and untraceable, which we think is vital when asking doctors for their opinions on issues that involve complaints processes and in particular their regulator. We believe it is important that we have used validated instruments to assess levels of anxiety and depression. The main limitation of the study is the overall response rate of 11.4%, and so we must be cautious about the possibility of ascertainment bias. However it should also be remembered that doctors who have been most traumatised may avoid taking part in the survey, whilst doctors who have been struck of the register, changed profession or committed suicide would not have completed the

survey. A further consideration when interpreting the data, are that levels of support were self-reported by the doctors in the study. The study specifically relates to doctors and complaints processes in the UK, so our findings may not be generalizable in terms of other health care settings

The results suggest there may be an association between speaking to family, friends and colleagues and accessing support from a professional organization and increased hedging and avoidance. It seems more likely that these actions reflect a tendency to seek advice in cases where the impact is greatest. A similar pattern is seen for depression and anxiety. The clear exception is “speaking with colleagues”. When doctors reported that they spoke to colleagues, they were significantly less likely to suffer from anxiety and depression, although it must be acknowledged that it is possible that doctors who are more anxious inherently find it more difficult to speak to colleagues. However in the event of a serious event, a doctor may be suspended from practice and denied the opportunity to access colleagues. Our data suggest this practice may damage the mental health of doctors and should be avoided. Whilst removing a doctor from clinical contact to protect patients may be necessary, it is unreasonable to stop them asking colleagues for support. Indeed it might be better if this was encouraged. It is notable that when doctors perceived they had the support of both colleagues and management, this was associated with less avoidance and psychological morbidity.

In 2012 McGivern, et al[17] described how values associated with “transparency” such as openness, independent review and accountability, though generally assumed to be beneficial, may have unintended consequences. These authors also examined reactivity mechanisms using interviews with medical staff and concluded that clinicians make sense of regulation through the experiences of their peers and stated “this heightens their anxiety

about regulators misunderstanding the complexity of their practice and looking to find malpractice in an inquisition-like climate of presumed guilt."[17] We have previously described how approximately 80% of doctors report hedging (e.g. overprescribing, over-referral) and 40% report avoidance (abandoning procedures early, avoiding difficult patients or procedures). These behaviours may have a serious impact on patient care. Our data suggest there is an association between how investigations are carried out, the support given to doctors whilst being subject to investigation, and both defensive practice and psychological morbidity. An example of this is the time taken to carry out a complaint investigation. Seventy-eight per cent of respondents indicated that the timescale involved in their complaint was protracted; whilst figures 1 and 2 show that a protracted timescale is associated with increased avoidance as well as anxiety and depression. More rigorous oversight of regulators and those tasked to investigate complaints locally with fixed timescales permitted for investigation and resolution of a complaints process would seem deliverable. It would also seem a straightforward requirement that investigative bodies follow normal processes, and documentation is fair. A summary box showing factors associated with positive and negative impact on doctors during complaints investigation is shown in supplementary file S3.

A further important factor appears to be the behaviour both of colleagues and those carrying out an investigation. Feeling undermined by management, feeling bullied or victimized, being involved in a dysfunctional team, inappropriate or vexatious use of clinical risk processes and feeling colleagues were taking advantage of the situation were associated with more depression, anxiety and avoidance. Bullying and undermining are unfortunately relatively common within the National Health Service in the UK[18]. It should be possible to rectify these issues by ensuring those carrying out investigations are knowledgeable and

follow clear, transparent processes. More widely, these issues require cultural change to be supported by national bodies. An example of this is the Royal College of Obstetricians and Gynaecologists undermining toolkit[19].

A recent review of doctors who committed suicide whilst under investigation by the GMC concluded that that the GMC has a demonstrable duty of care to those it investigates[20]. The authors cited poor communication, lack of support and unacceptable delays as being factors that increased physician stress. These themes are not dissimilar to the procedural issues we found to be associated with increased psychological morbidity. Our data is derived from all complaints processes and not just referrals to the GMC, so this is a much wider problem than the almost 10,000 doctors referred to the regulator in the UK[21,22]. Our findings were similar irrespective of the type of complaint. It would seem perceived and actual support, the use of appropriate process and the behavior of colleagues is important irrespective of the type of investigation, and that all these may all have a significant impact on the wellbeing of doctors. Even though more support may be in place for serious complaints such as to the GMC, a doctor's perception may be that that support is inadequate in relation to the severity of the process being faced. The relative lack of assistance for low-level complaints may lead to similar perceptions of lack of support.

It is likely that complaints may lead to come positive changes in practice for some physicians, such as improved record keeping. However it is noteworthy that in our previous qualitative report on this database only 6% of doctors described complaint investigations as a positive experience[2]. However overwhelmingly the experience appears to be negative, and procedures that cause avoidance and hedging will be harmful to patients and incur significant costs. In the United States a recent call to action in the American Journal of Obstetrics and Gynecology highlighted the dangers of burnout[23]. The National Academy of

Medicine has also recognised there is an urgent need to address the issue of physician wellbeing[24]. As part of these initiatives, rectifying a culture for investigating complaints that damages doctors and potentially harms patients because of defensive practice should be a priority.

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Contributors: TB conceived of the original idea for the study, interpreted results, drafted the paper and is overall guarantor. MJ designed the questionnaire, obtained ethical approval, contributed to the preparation of the data set, interpreted results and contributed to drafts of the paper. BDC, LW and BVC carried out the statistical analysis and contributed to interpretation of results and drafts of the papers. MP contributed to the study design, interpretation of results and commented on drafts of the paper. DT and CVA contributed to interpretation of results and commented on drafts of the paper. All authors approved the final version of the manuscript.

Transparency: TB, BVC, MJ and DT are the guarantors, and affirm that that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Contribution, v) the inclusion of electronic links from the Contribution to third party material where-ever it may be located; and, vi) licence any third party to do any or all of the above."

Competing interests: MP is head of the BMA doctors for doctors unit and so receives payment from the BMA. All other authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

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Tables and Figures

Table 1. Demographic information for the study population compared to the total BMA membership consented for research

	Total BMA membership consented for research (%)	Study Population N (%)
Age:	–	–
- up to 25	17.8%	15 (0.2%)
- 26 to 29	9.0%	164 (2.7%)
- 30 to 34	9.6%	398 (6.5%)
- 35 to 39	10.3%	643 (10.5%)
- 40 to 44	10.3%	837 (13.7%)
- 45 to 49	10.8%	1105 (18.1%)
- 50 to 54	10.3%	1262 (20.7%)
- 55 to 59	8.1%	1013 (16.6%)
- 60 to 64	5.0%	429 (7%)
- 65 to 69	3.0%	178 (2.9%)
- over 69	5.9%	63 (1%)
Gender:	46.3% Female	2800 (46.5%) Female
Place of qualification:	–	–
- UK	80.1%	5077 (82.6%)
- India	8.2%	331 (5.4%)
- Pakistan	2.2%	55 (0.9%)
- Ireland	0.9%	90 (1.5%)
- Nigeria	1.1%	64 (1%)
- Germany	0.7%	79 (1.3%)
- South Africa	0.7%	58 (0.9%)
- Other	6.2%	390 (6.3%)

Table 1. Demographic information (continued)

	Total BMA membership consented for research (%)	Study Population N (%)
Ethnicity:	–	–
- White British	67.6%	4825 (80.5%)
- Asian or Asian British	23.3%	849 (14.2%)
- Black or Black British	3.5%	122 (2%)
- Chinese or Chinese British	2.9%	69 (1.2%)
- Mixed	2.7%	127 (2.1%)
Grade:	–	–
- Academics	2.1%	66 (1.1%)
- Consultants	27.2%	2301 (37.5%)
- General practice	26.0%	2643 (43%)
- Junior Doctors	26.4%	568 (9.2%)
- SASC	5.3%	313 (5.1%)
- Retired	8.6%	54 (0.9%)
- Other or no answer	4.4%	199 (3.2%)
Specialty[1]:	–	–
- Accident and emergency	/	137 (2.3%)
- Anesthetics	/	341 (5.7%)
- General Medicine	/	690 (11.4%)
- General Practice	/	2845 (47.2%)
- Obstetrics and gynecology	/	62 (1%)
- Oncology	/	111 (1.8%)
- Other	/	271 (4.5%)
- Pediatrics	/	66 (1.1%)
- Pathology	/	495 (8.2%)
- Psychiatry	/	106 (1.8%)
- Radiology	/	604 (10%)

[1] No data was available on the distribution of specialty in the BMA population.

Table 2. The number and percentage of the type of complaint reported in the study.

Type of Complaint investigation*	n (%)
General Medical Council (GMC)	873 (14.2%)
Serious Untoward Incident (SUI)	732 (11.9%)
Formal	3096 (50.4%)
Informal	1284 (20.9%)
Missing	159 (2.6%)
Total	6144

*Doctors were asked to fill in the questionnaire based on the complaint/investigation that had most impact on them.

Table 3. Descriptive information for the items in the questionnaire used in the analysis

Actual Support	Missing	No	Yes				
Spoke to family/friends about it	660	786 (14%)	4698 (86%)	–	–	–	–
Spoke to colleagues about it	625	406 (7%)	5113 (93%)	–	–	–	–
Represented yourself	1014	3218 (63%)	1912 (37%)	–	–	–	–
Accessed support from medical professional support organisation	801	2177 (41%)	3166 (59%)	–	–	–	–
Engaged an independent solicitor	1016	4702 (92%)	426 (8%)	–	–	–	–
Accessed support from BMA employment advice service	950	4564 (88%)	630 (12%)	–	–	–	–
Accessed support from BMA	983	4764 (92%)	397 (8%)	–	–	–	–

counselling/other support organisation

Perceived support	Missing	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Not applicable
I felt supported by management	819	1252 (24%)	521 (10%)	952 (18%)	952 (18%)	716 (13%)	932 (18%)
I felt supported by my colleagues	782	489 (9%)	393 (7%)	787 (15%)	1537 (29%)	1734 (32%)	422 (8%)
I felt supported by my medical professional organisation	890	307 (6%)	260 (5%)	946 (18%)	602 (11%)	588 (11%)	2551 (49%)
I felt supported by my defence organisation	826	214 (4%)	221 (4%)	659 (12%)	1077 (20%)	1547 (29%)	1600 (30%)

BMA: British Medical Association

Table 3. Descriptive information for the items in the questionnaire used in the analysis (continued)

Process related issues	Missing	Not at all	A little	To some extent	Quite a lot	Definitely
Normal process was not followed	1116	2164 (43%)	600 (12%)	1014 (20%)	525 (10%)	725 (14%)
Documentary record was fair and accurate	1703	749 (17%)	545 (12%)	1116 (25%)	1124 (25%)	907 (20%)
Timescale was needlessly protracted	1316	1066 (22%)	737 (15%)	1006 (21%)	627 (13%)	1392 (29%)
Well informed of when and if I could bring representation	1820	1187 (27%)	601 (14%)	1059 (25%)	827 (19%)	650 (15%)
Inappropriate or vexatious use of hospital clinical risk process	1990	2098 (51%)	470 (11%)	626 (15%)	298 (7%)	662 (16%)
Complaint was due to dysfunctional team	1559	2910 (63%)	323 (7%)	481 (10%)	267 (6%)	604 (13%)
Felt victimised because I had been a whistle-blower	1691	3552 (80%)	184 (4%)	190 (4%)	148 (3%)	379 (9%)
Clinical issues raised against me after the initial complaint	1612	3571 (79%)	221 (5%)	270 (6%)	153 (3%)	317 (7%)
I felt bullied during the investigation	1517	2842 (61%)	372 (8%)	502 (11%)	268 (6%)	643 (14%)
Managers used complaints to undermine my position	1603	3117 (69%)	307 (7%)	333 (7%)	207 (5%)	577 (13%)
Colleagues used process to gain advantage financially or professionally	1561	3495 (76%)	233 (5%)	267 (6%)	149 (3%)	439 (10%)

Table 3. Descriptive information for the items in the questionnaire used in the analysis (continued)

Worries about the complaint	Missing	Not at all	A little	To some extent	Quite a lot	A lot
I worried about loss of livelihood	953	1889 (36%)	605 (12%)	1034 (20%)	380 (7%)	1283 (25%)
I worried about public humiliation	951	1532 (30%)	593 (11%)	1164 (22%)	606 (12%)	1298 (25%)
I worried about professional humiliation	923	1069 (20%)	562 (11%)	1229 (24%)	738 (14%)	1623 (31%)
I worried about having aspects of clinical practice restricted	972	2296 (44%)	720 (14%)	810 (16%)	446 (9%)	900 (17%)
I worried about family problems	984	2738 (53%)	569 (11%)	704 (14%)	398 (8%)	751 (15%)
I worried about having a marked record in the future	937	1105 (21%)	524 (10%)	1098 (21%)	746 (14%)	1734 (33%)
I worried about financial costs	985	2227 (43%)	701 (14%)	894 (17%)	438 (8%)	899 (18%)

Table 4. Relative risks for anxiety, depression, hedging and avoidance behaviour in relation to perceived and actual support, colleagues' behavior as well as process-related issues

	Relative Risks (95% CI)			
Item	Anxiety	Depression	Hedging	Avoidance
Actual support:	–	–	–	–
Spoke to family/friends	1.58 (1.11-2.26)	1.46 (1.06-2.02)	1.28 (1.17-1.41)	1.15 (1.05-1.27)
Spoke to colleagues	0.69 (0.51-0.94)	0.64 (0.48-0.84)	1.23 (1.09-1.40)	1.01 (0.90-1.13)
Represented yourself	1.19 (0.96-1.47)	1.29 (1.06-1.57)	0.99 (0.93-1.05)	1.07 (1.01-1.15)
Medical professional support	1.15 (0.93-1.42)	1.31 (1.07-1.60)	1.22 (1.15-1.30)	1.19 (1.12-1.27)
Independent solicitor	1.70 (1.29-2.23)	1.85 (1.45-2.36)	0.98 (0.89-1.09)	1.19 (1.08-1.30)
BMA employment advice service	1.71 (1.35-2.17)	2.06 (1.68-2.52)	0.81 (0.74-0.90)	1.24 (1.14-1.34)
BMA counselling	1.74 (1.33-2.29)	1.91 (1.50-2.44)	0.96 (0.86-1.07)	1.25 (1.14-1.38)
Perceived support from:	–	–	–	–
Management	0.80 (0.74-0.87)	0.77 (0.71-0.83)	0.98 (0.96-1.00)	0.91 (0.89-0.93)
Colleagues	0.78 (0.73-0.84)	0.77 (0.72-0.83)	0.96 (0.94-0.98)	0.90 (0.89-0.92)
Medical professional support	0.87 (0.79-0.96)	0.84 (0.77-0.93)	0.98 (0.95-1.01)	0.98 (0.95-1.01)
Defence organisation	0.87 (0.79-0.95)	0.84 (0.77-0.91)	1.03 (1.00-1.06)	0.96 (0.93-0.99)
Process related issues*:	–	–	–	–
Normal process not followed	1.18 (1.10-1.26)	1.15 (1.08-1.23)	1.01 (0.99-1.03)	1.07 (1.05-1.09)
Documentary record was fair and accurate	0.81 (0.75-0.87)	0.80 (0.75-0.86)	0.98 (0.96-1.00)	0.94 (0.92-0.96)
Time scale was needlessly protracted	1.16 (1.08-1.26)	1.20 (1.12-1.29)	1.05 (1.03-1.07)	1.10 (1.07-1.12)
Informed of rights regarding representation	0.94 (0.87-1.02)	0.96 (0.89-1.03)	0.97 (0.95-0.99)	0.96 (0.94-0.98)
Inappropriate or vexatious use of risk process	1.17 (1.10-1.25)	1.18 (1.11-1.26)	1.02 (1.00-1.04)	1.10 (1.08-1.12)
Complaint due to dysfunctional team relationships	1.19 (1.12-1.26)	1.19 (1.12-1.25)	0.99 (0.97-1.01)	1.08 (1.06-1.10)
Felt victimised as a whistleblower	1.22 (1.15-1.30)	1.23 (1.17-1.30)	0.99 (0.97-1.01)	1.09 (1.07-1.11)
Clinical issues raised against me after the initial complaint	1.20 (1.13-1.28)	1.22 (1.15-1.29)	1.04 (1.01-1.06)	1.11 (1.08-1.13)
Felt bullied during the investigation	1.30 (1.22-1.38)	1.28 (1.22-1.35)	1.03 (1.01-1.05)	1.11 (1.09-1.13)
Managers used complaints processes to undermine my position	1.25 (1.18-1.33)	1.27 (1.20-1.34)	1.01 (0.99-1.03)	1.11 (1.09-1.13)
Colleagues used process to take advantage financially or professionally	1.22 (1.15-1.30)	1.22 (1.16-1.29)	1.02 (1.00-1.04)	1.11 (1.09-1.14)

* Items have been paraphrased from the original questionnaire. The full questionnaire can be found in file S1.

Table 4. Relative risks for anxiety, depression, hedging and avoidance behaviour in relation to perceived and actual support, colleagues' behavior as well as process-related issues (continued)

	Relative Risks (95% CI)			
Item	Anxiety	Depression	Hedging	Avoidance
Worrying about the complaint:	–	–	–	–
Loss of livelihood	1.40 (1.30-1.50)	1.43 (1.34-1.53)	1.11 (1.09-1.13)	1.14 (1.12-1.16)
Public humiliation	1.43 (1.33-1.54)	1.38 (1.29-1.48)	1.13 (1.12-1.15)	1.15 (1.12-1.17)
Professional humiliation	1.52 (1.38-1.66)	1.53 (1.40-1.66)	1.14 (1.12-1.16)	1.15 (1.13-1.18)
Aspects of clinical practice restricted	1.33 (1.25-1.42)	1.39 (1.31-1.47)	1.10 (1.08-1.12)	1.14 (1.11-1.16)
Family problems	1.44 (1.35-1.53)	1.46 (1.38-1.55)	1.11 (1.09-1.13)	1.14 (1.12-1.16)
Marked record in the future	1.49 (1.36-1.64)	1.53 (1.40-1.67)	1.13 (1.11-1.16)	1.14 (1.11-1.16)
Financial costs	1.38 (1.29-1.47)	1.43 (1.34-1.52)	1.11 (1.09-1.13)	1.15 (1.13-1.17)

Legends for figures

Fig1: The relative risks (with 95% confidence intervals) for anxiety and depression in relation to actual and perceived support as well as process related issues

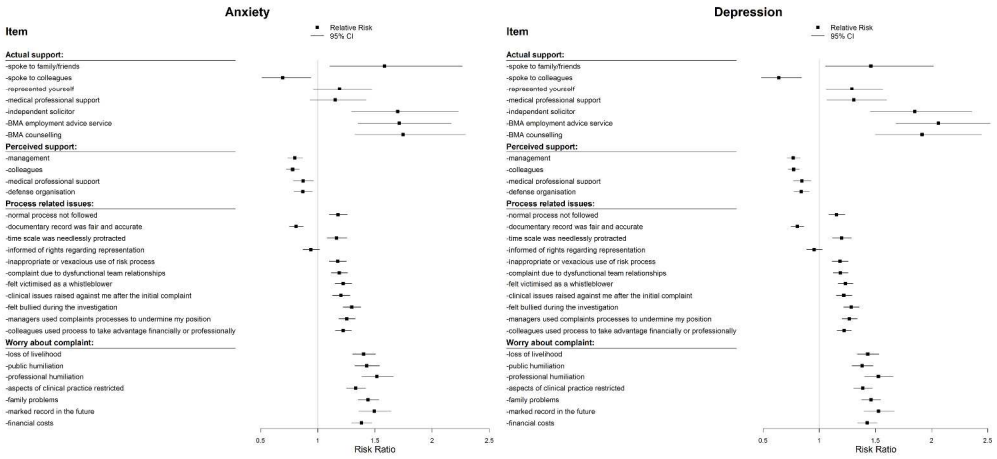
Fig 2. The relative risks (with 95% confidence intervals) for hedging and avoidance in relation to actual and perceived support as well as process related issues

Supplementary material

Supplementary file 1: The full survey that was sent to physicians

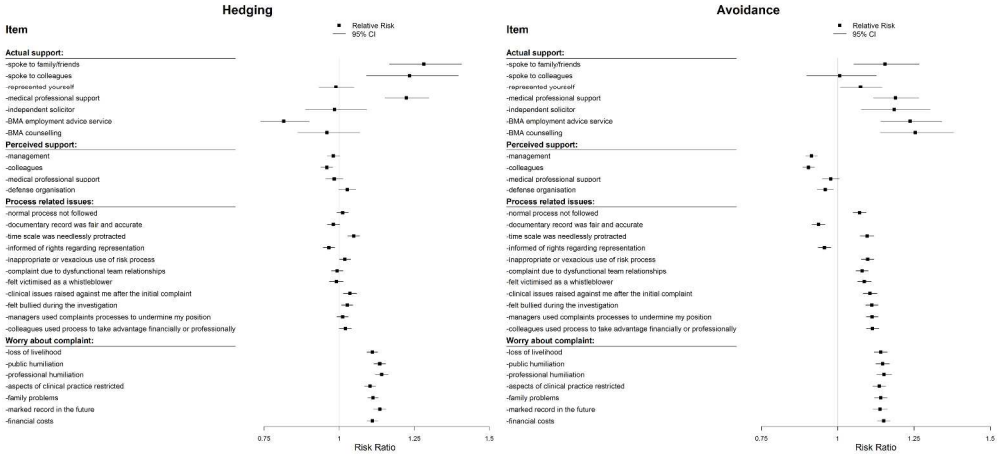
Supplementary file 2: Further statistical information: dichotomization, relationships with the type or timing of the complaint, and sensitivity analysis

Supplementary file 3: Summary box to illustrate factors associated with a positive or negative impact on doctor's wellbeing and clinical practice when there is an investigation into a complaint.



The relative risks (with 95% confidence intervals) for anxiety and depression in relation to actual and perceived support as well as process related issues

592x279mm (300 x 300 DPI)



The relative risks (with 95% confidence intervals) for hedging and avoidance in relation to actual and perceived support as well as process related issues

592x279mm (300 x 300 DPI)

The IMPACT study

1. Consent to participate in the study

This is an electronic form of consent for the study. By ticking the boxes below, you agree to take part in the study.

All information that you provide is ANONYMOUS and CONFIDENTIAL and held in strictest confidence. You will not be asked to provide any information that can be used to identify you nor can you be identified by us by filling in any part of this survey.

1. I consent to the use of my survey results to better understand the impact of complaints and investigations on doctors and their practice.

- ◯ Yes
- ◯ No

2.

3. Demographics

This section will ask you some general questions about you and your background.

2. How old are you?

3. What is your gender?

- ◯ Female
- ◯ Male

4. What is your Marital Status?

5. What is your Ethnic Origin?

6. In which year did you qualify?

7. If you qualified outside the UK, in which year did you come to the UK to practice medicine?

8. If relevant, in which year did you complete your specialist training?

The IMPACT study

9. In which country did you complete your medical training?

10. Where is your principal workplace? (where you spend the majority of your working time)

- [ ] GP surgery
- [ ] Elsewhere in primary care
- [ ] District general hospital
- [ ] University teaching hospital
- [ ] Academic institution
- [ ] Private practice clinic/hospital

Other (please specify)

11. What is your specialty?

Other (please specify)

12. Is your current post

- [ ] Part time
- [ ] Part time - Locum
- [ ] Full time
- [ ] Full time - Locum
- [ ] Self-employed contractor

13. What is your grade?

Other (please specify)

14. How long have you worked in your current post?

4. Informal and formal complaints

The IMPACT study

15. Have you ever been subjected to an informal complaint, formal complaint or serious untoward incident?

- ☐ No
- ☐ Yes, and it is either ongoing or was resolved within the past 6 months
- ☐ Yes, and it was resolved more than 6 months ago

5. About your complaint

16. Please enter how many of each of the following you have had

	0	1	2	3	4	5	6	7	8	9	10+
Informal complaints	○	○	○	○	○	○	○	○	○	○	○
Formal complaints	○	○	○	○	○	○	○	○	○	○	○
Serious untoward incidents	○	○	○	○	○	○	○	○	○	○	○
Referrals to the GMC	○	○	○	○	○	○	○	○	○	○	○

17. If applicable, which complaint or incident had the most impact on you?

Optional comments

18. What was the reason given to you for your complaint / referral to the GMC (if more than one, please select the most serious allegation)?

- ☐ Clinical complaint
- ☐ Clinical performance (i.e. concerns raised about your practice generally)
- ☐ Personal conduct (e.g. dishonesty, affairs with patients)
- ☐ Criminal offence (e.g. dangerous driving, fraud)

19. Where did the complaint come from?

	Yes	No
Trust	☐	☐
Medical colleagues	☐	☐
Patient	☐	☐
Management	☐	☐
Media	☐	☐
Patient group	☐	☐
Other health care professional	☐	☐
Anynomous	☐	☐

20. How long ago was your (most recent) complaint / investigation concluded?

The IMPACT study

21. How long (in months) did the investigation take?

If more than one, please select the most serious allegation

If the investigation is ongoing, please enter the length of time it has taken up to this point

22. If you were referred to the GMC for a procedure, how long did that take (in months)?

If it is still ongoing, please state how long it has taken up to this point

23. How stressful did you find the following aspects of the GMC procedure?

	Extremely stressful	2	Somewhat stressful	4	Not at all stressful	N/A
The initial GMC investigation	◯	◯	◯	◯	◯	◯
The decision to hold a Fitness to Practice hearing	◯	◯	◯	◯	◯	◯
The Fitness to Practice hearing itself	◯	◯	◯	◯	◯	◯
The appeal	◯	◯	◯	◯	◯	◯

24. What was the outcome of the complaint / procedure?

- ☐ No fault / exonerated
- ☐ Retraining imposed
- ☐ Disciplinary action
- ☐ Suspended from practice
- ☐ Struck off from the register
- ☐ The process was not clearly concluded

Other (please specify)

25. At any point during the investigation(s), did you

	Yes	No
Take sick leave	◯	◯
Take unpaid leave	◯	◯
Have supervised practice	◯	◯
Have restrictions placed on your practice	◯	◯
Were you suspended	◯	◯
Did your restrictions also include your private practice (if applicable)	◯	◯

26. How long were you off work in total?

The IMPACT study

27. Please estimate the direct financial costs (e.g. travel, legal fees, etc. in GBP) to you as a result of the investigation (if relevant)

28. Please estimate the indirect financial costs (e.g. loss of earnings, in GBP) to you as a result of the investigation (if relevant)

29. At any point of the inquiry, did you do any of the following

	Yes	No
Speak to family / friends about it	◯	◯
Speak to your colleagues about it	◯	◯
Represent yourself	◯	◯
Access support from a medical professional support organisation	◯	◯
Engage an independent solicitor or barrister	◯	◯
Were your case or the complaint published in the media (including social media)	◯	◯
Access support from the BMA employment advice service	◯	◯
Access support from the BMA counselling / other support organisation	◯	◯

The IMPACT study

30. As a consequence of the inquiry, to what extent do you agree/disagree with the following statements

	Strongly Agree	2	Neutral	4	Strongly Disgree	N/A
The potential consequences of the enquiry were clear to me throughout the process	◯	◯	◯	◯	◯	◯
I clearly understood the process	◯	◯	◯	◯	◯	◯
The process was transparent	◯	◯	◯	◯	◯	◯
Going through the process, I felt that I was assumed guilty until proven otherwise	◯	◯	◯	◯	◯	◯
I felt as if I had been scapegoated	◯	◯	◯	◯	◯	◯
I felt I had no control over what was happening to me	◯	◯	◯	◯	◯	◯
I felt alone in the proceedings	◯	◯	◯	◯	◯	◯
My complaint was primarily related to conflicts with colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my management	◯	◯	◯	◯	◯	◯
I felt well supported by my colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my medical professional support organisation	◯	◯	◯	◯	◯	◯
I felt well supported by my defence organisation	◯	◯	◯	◯	◯	◯
I felt that the complaint was fair	◯	◯	◯	◯	◯	◯
I felt that the complaint was reasonably dealt with	◯	◯	◯	◯	◯	◯
I felt that there were unnecessary delays in the process	◯	◯	◯	◯	◯	◯
I felt my complaint was handled competently	◯	◯	◯	◯	◯	◯
I was worried about the complaint escalating further	◯	◯	◯	◯	◯	◯
I felt that the consequences were proportionate	◯	◯	◯	◯	◯	◯
I felt that the nature of the process was overly punitive	◯	◯	◯	◯	◯	◯
I felt that the complaint was vexatious	◯	◯	◯	◯	◯	◯

The IMPACT study

31. To what extent did the following apply in relation to the process of the complaint or procedure you experienced

	Not at all	2	To some extent	4	Definitely
Normal process was not followed	◯	◯	◯	◯	◯
The documentary record such as minutes produced by the investigative body was fair and accurate	◯	◯	◯	◯	◯
The time scale for the investigation was needlessly protracted	◯	◯	◯	◯	◯
I was kept well informed of when or if I could bring representation to meetings	◯	◯	◯	◯	◯
I believe there was inappropriate or vexacious use of the hospital clinical risk process	◯	◯	◯	◯	◯
I felt the complaint arose because of dysfunctional relationships within the clinical team	◯	◯	◯	◯	◯
I felt victimised because I had been a whistleblower for clinical or managerial failures	◯	◯	◯	◯	◯
Clinical issues were found after the initial complaint and used against me	◯	◯	◯	◯	◯
I felt bullied during the investigation	◯	◯	◯	◯	◯
I felt managers used the process to undermine my position	◯	◯	◯	◯	◯
I felt clinical colleagues used the process to gain an advantage either financially or professionally	◯	◯	◯	◯	◯

Other (please specify)

32. During the inquiry, to what extent were you worried about the following outcomes

	A lot	2	To some extent	4	Not at all
Loss of livelihood	◯	◯	◯	◯	◯
Public humiliation	◯	◯	◯	◯	◯
Professional humiliation	◯	◯	◯	◯	◯
Having aspects of your clinical practice restricted	◯	◯	◯	◯	◯
Family problems	◯	◯	◯	◯	◯
Having a marked record in the future	◯	◯	◯	◯	◯
Financial costs	◯	◯	◯	◯	◯

33. Currently, to what extent do you worry about complaints being made against you?

◯ A great deal / nearly all the time

◯ 2

◯ To some extent

◯ 4

◯ Not at all

The IMPACT study

34. To what extent do you agree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree
Complaints are usually due to bad luck	○	○	○	○	○
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	○	○	○	○	○
Complaints are caused by litigatious patients	○	○	○	○	○
Doctors are hounded by the media	○	○	○	○	○
Doctors who receive complaints against them are generally unsuitable to practice medicine	○	○	○	○	○
I feel the need to please my colleagues to avoid complaints against me	○	○	○	○	○
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	○	○	○	○	○
Receiving a complaint would seriously affect my future career prospects	○	○	○	○	○
I have considered changing my career because of the high risk of receiving a complaint in my speciality	○	○	○	○	○

6. About complaints in general

35. In general, to what extent do you worry about complaints being made against you?

○ A great deal / nearly all the time

○ 2

○ To some extent

○ 4

○ Not at all

The IMPACT study

36. To what extent do you agree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree
Complaints are usually due to bad luck	○	○	○	○	○
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	○	○	○	○	○
Complaints are caused by litigatious patients	○	○	○	○	○
Doctors are hounded by the media	○	○	○	○	○
Doctors who receive complaints against them are generally unsuitable to practice medicine	○	○	○	○	○
I feel the need to please my colleagues to avoid complaints against me	○	○	○	○	○
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	○	○	○	○	○
Receiving a complaint would seriously affect my future career prospects	○	○	○	○	○
I have considered changing my career because of the high risk of receiving a complaint in my speciality	○	○	○	○	○

37. To what extent do you agree/disagree with the following statements?

	Strongly Agree	2	Neutral	4	Strongly Disgree
Complaints are primarily related to conflicts with colleagues	○	○	○	○	○
If I had a complaint made against me, I am confident that my management would support me	○	○	○	○	○
If I had a complaint made against me, I am confident that my colleagues would support me	○	○	○	○	○
If I had a complaint made against me, I am confident that my medical professional support organisation would support me	○	○	○	○	○
If I had a complaint made against me, I am confident that my defence organisation would support me	○	○	○	○	○
Overall, I believe that the complaints process is fair	○	○	○	○	○
Overall, I believe that complaints are reasonably dealt with	○	○	○	○	○
Overall, I believe that the complaints process is handled competently	○	○	○	○	○
Overall, I believe that the consequences are proportionate in the complaints process	○	○	○	○	○
Overall, I believe that the complaints process is vexatious	○	○	○	○	○
Overall, I believe that the complaints process is overly punitive	○	○	○	○	○

7. Medical History

The IMPACT study

38. In the past 12 months, have you suffered from any of the following health conditions or stressors (please tick all that apply)?

- ☐ Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)
- ☐ Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)
- ☐ Depression
- ☐ Anxiety
- ☐ Anger & irritability
- ☐ Other mental health problems
- ☐ Suicidal thoughts
- ☐ Sleep problems / insomnia
- ☐ Marital / relationship problems
- ☐ Frequent headaches
- ☐ Minor colds
- ☐ Recurring respiratory infections

If yes - please specify

39. In the past 12 months, have you experienced any additional life stressors (e.g. bereavement, accident, etc.)

- ○ Yes
- ○ No

If yes please specify

40. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ No

8. Possible legal consequences and professional practice

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

The IMPACT study

41. How often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals than warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters about a patient than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

42. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

The IMPACT study

43. As a result of what you know about the complaints process, have you

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that are considered high risk of complaints	◯	◯
Changed your specialty	◯	◯
Become less likely to take on high-risk cases	◯	◯
Become more likely to abandon a procedure at an early stage	◯	◯
Felt that you have learnt from others' experience and improved your performance as a doctor	◯	◯

Other (please specify)

44. Indicate the extent you feel that any of the following changes would improve the complaints process?

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous internal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

9. Medical History (ii)

The IMPACT study

45. In the past 12 months, have you suffered from any of the following health conditions or stressors (please tick all that applies):

- ☐ Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)
- ☐ Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)
- ☐ Depression
- ☐ Anxiety
- ☐ Anger & irritability
- ☐ Other mental health problems
- ☐ Suicidal thoughts
- ☐ Sleep problems / insomnia
- ☐ Marital / relationship problems
- ☐ Frequent headaches
- ☐ Minor colds
- ☐ Recurring respiratory infections

If yes - please specify

46. In the past 12 months, have you experienced any additional life stressors (e.g. bereavement, accident, etc.)

- ○ Yes
- ○ No

If yes, please specify

47. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ No

10. Legal consequences and professional practice (ii)

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

The IMPACT study

48. How often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals even when this is not warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

49. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Previous experience of complaints about you	◯	◯
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

The IMPACT study

50. As a result of your experience do any of the following apply?

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that led to the complaint	◯	◯
Changed your specialty	◯	◯
Less likely to take on high-risk cases	◯	◯
More likely to abandon a procedure at an early stage	◯	◯
Moved into a non-clinical role	◯	◯
You have become less committed and work strictly to your job description	◯	◯
You have learnt from the experience and improved your performance as a doctor	◯	◯
Left medicine and started a new career	◯	◯
The complaint or the way you were treated was related to discrimination	◯	◯
Retired early	◯	◯
Reduced your hours in the NHS to minimise your time there	◯	◯
Stopped working for the NHS and decided to work only in private practice or practice medicine elsewhere	◯	◯

Other (please specify)

51. Indicate the extent you feel that any of the following changes would improve the process

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous interrnal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and with possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

11. About your complaint (iii)

The IMPACT study

52. Please enter how many of each of the following you have had

	0	1	2	3	4	5	6	7	8	9	10+
Informal complaints	○	○	○	○	○	○	○	○	○	○	○
Formal complaints	○	○	○	○	○	○	○	○	○	○	○
Serious untoward incidents	○	○	○	○	○	○	○	○	○	○	○
Referrals to the GMC	○	○	○	○	○	○	○	○	○	○	○

53. If applicable, which complaint or incident had the most impact on you?

Optional comments

54. What was the reason for your complaint / referral to the GMC (if more than one, please select the most serious allegation)?

- ☐ Clinical complaint
- ☐ Clinical performance (i.e. concerns raised about your practice generally)
- ☐ Personal conduct (e.g. dishonesty, affairs with patients)
- ☐ Criminal offence (e.g. dangerous driving, fraud)

55. Where did the complaint come from?

	Yes	No
Trust	☐	☐
Medical colleagues	☐	☐
Patient	☐	☐
Management	☐	☐
Media	☐	☐
Patient group	☐	☐
Other health care professional	☐	☐
Anonymous	☐	☐

56. How long ago was your (most recent) complaint / investigation concluded?

57. How long (in months) did the investigation take (if more than one, please select the most serious allegation)?

58. If you were referred to the GMC for a process, how long did that take (in months)?

The IMPACT study

59. If applicable, how stressful did you find the following aspects of the GMC process?

	Extremely stressful	2	Somewhat stressful	4	Not at all stressful	N/A
The initial GMC investigation	◯	◯	◯	◯	◯	◯
The decision to hold a Fitness to Practice hearing	◯	◯	◯	◯	◯	◯
The Fitness to Practice hearing itself	◯	◯	◯	◯	◯	◯
The appeal	◯	◯	◯	◯	◯	◯

60. What was the outcome of the complaint / process?

- ☐ No fault / exonerated
- ☐ Retraining imposed
- ☐ Disciplinary action
- ☐ Suspended from practice
- ☐ Struck off from the register
- ☐ The process was not clearly concluded

Other (please specify)

61. At any point during the investigation(s), did you

	Yes	No
Take sick leave	◯	◯
Take unpaid leave	◯	◯
Have supervised practice	◯	◯
Have restrictions placed on your practice	◯	◯
Were you suspended	◯	◯
Did your restrictions also include your private practice (if applicable)	◯	◯

62. How long were you off work in total?

63. Please estimate the direct financial costs (e.g. travel, legal fees, etc. in GBP) to you as a result of the investigation (if relevant)

64. Please estimate the indirect financial costs (e.g. loss of earnings in GBP) to you as a result of the investigation (if relevant)

The IMPACT study

65. At any point of the inquiry, did you

	Yes	No
Speak to family / friends about it	◯	◯
Speak to your colleagues about it	◯	◯
Represent yourself	◯	◯
Access support from a medical professional support organisation	◯	◯
Engage an independent solicitor or barrister	◯	◯
Were your case or the complaint published in the media (including social media)	◯	◯
Access support from the BMA employment advice service	◯	◯
Access support from the BMA counselling / other support organisation	◯	◯

66. As a consequence of the inquiry, to what extent do you agree/disagree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree	N/A
The potential consequences of the enquiry were clear to me throughout the process	◯	◯	◯	◯	◯	◯
I clearly understood the process	◯	◯	◯	◯	◯	◯
The process was transparent	◯	◯	◯	◯	◯	◯
Going through the process, I felt that I was assumed guilty until proven otherwise	◯	◯	◯	◯	◯	◯
I felt as if I had been scapegoated	◯	◯	◯	◯	◯	◯
I felt I had no control over what was happening to me	◯	◯	◯	◯	◯	◯
I felt alone in the proceedings	◯	◯	◯	◯	◯	◯
My complaint was primarily related to conflicts with colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my management	◯	◯	◯	◯	◯	◯
I felt well supported by my colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my medical professional support organisation	◯	◯	◯	◯	◯	◯
I felt well supported by my defence organisation	◯	◯	◯	◯	◯	◯
I felt that the complaint was fair	◯	◯	◯	◯	◯	◯
I felt that the complaint was reasonably dealt with	◯	◯	◯	◯	◯	◯
I felt that there were unnecessary delays in the process	◯	◯	◯	◯	◯	◯
I felt my complaint was handled competently	◯	◯	◯	◯	◯	◯
I was worried about the complaint escalating further	◯	◯	◯	◯	◯	◯
I felt that the consequences were proportionate	◯	◯	◯	◯	◯	◯
I felt that the nature of the process was overly punitive	◯	◯	◯	◯	◯	◯
I felt that the complaint was vexatious	◯	◯	◯	◯	◯	◯

The IMPACT study

67. To what extent did the following apply in relation to the process of the complaint or procedure you experienced?

	Not at all	2	To some extent	4	Definitely
Normal process was not followed	◯	◯	◯	◯	◯
The documentary record such as minutes produced by the investigative body was fair and accurate	◯	◯	◯	◯	◯
The time scale for the investigation was needlessly protracted	◯	◯	◯	◯	◯
I was kept well informed of when or if I could bring representation to meetings	◯	◯	◯	◯	◯
I believe there was inappropriate or vexacious use of the hospital clinical risk process	◯	◯	◯	◯	◯
I felt the complaint arose because of dysfunctional relationships within the clinical team	◯	◯	◯	◯	◯
I felt victimised because I had been a whistleblower for clinical or managerial failures	◯	◯	◯	◯	◯
Clinical issues were found after the initial complaint and used against me	◯	◯	◯	◯	◯
I felt bullied during the investigation	◯	◯	◯	◯	◯
I felt managers used the process to undermine my position	◯	◯	◯	◯	◯
I felt clinical colleagues used the process to gain an advantage either financially or professionally	◯	◯	◯	◯	◯

Other (please specify)

68. During the inquiry, to what extent were you worried about the following outcomes?

	A lot	2	To some extent	4	Not at all
Loss of livelihood	◯	◯	◯	◯	◯
Public humiliation	◯	◯	◯	◯	◯
Professional humiliation	◯	◯	◯	◯	◯
Having aspects of your clinical practice restricted	◯	◯	◯	◯	◯
Family problems	◯	◯	◯	◯	◯
Having a marked record in the future	◯	◯	◯	◯	◯
Financial costs	◯	◯	◯	◯	◯

69. Currently, to what extent do you worry about complaints being made against you?

◯ A great deal / nearly all the time

◯ 2

◯ To some extent

◯ 4

◯ Not at all

The IMPACT study

70. To what extent do you agree with the following statements?

	Definitely agree	2	Neutral	4	Definitely disagree
Complaints are usually due to bad luck	○	○	○	○	○
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	○	○	○	○	○
Complaints are caused by litigatious patients	○	○	○	○	○
Doctors are hounded by the media	○	○	○	○	○
Doctors who receive complaints against them are generally unsuitable to practice medicine	○	○	○	○	○
I feel the need to please my colleagues to avoid complaints against me	○	○	○	○	○
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	○	○	○	○	○
Receiving a complaint would seriously affect my future career prospects	○	○	○	○	○
I have considered changing my career because of the high risk of receiving a complaint in my speciality	○	○	○	○	○

12. Medical History (iii)

71. When you were facing the investigation, did you experience any of the following?

	Improvement	No change	Onset of	Worsening of
Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)	☐	☐	☐	☐
Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)	☐	☐	☐	☐
Depression	☐	☐	☐	☐
Anxiety	☐	☐	☐	☐
Anger & irritability	☐	☐	☐	☐
Other mental health problems	☐	☐	☐	☐
Suicidal thoughts	☐	☐	☐	☐
Sleep problems / insomnia	☐	☐	☐	☐
Relationship problems	☐	☐	☐	☐
Frequent headaches	☐	☐	☐	☐
Minor colds	☐	☐	☐	☐
Recurring respiratory infections	☐	☐	☐	☐

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72. During the process, did you experience any additional life stressors (e.g. bereavement, accident, etc.)

- ◯ Yes
- ◯ No

If yes please specify

73. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ Yes, during the investigation
- ☐ No

13. Legal consequences and professional practice (iii)

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

74. As a result of your experience, how often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals than warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters about a patient than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

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75. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Previous experience of complaints about you	◯	◯
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

76. As a result of your experience do any of the following apply?

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that led to the complaint	◯	◯
Changed your specialty	◯	◯
Less likely to take on high-risk cases	◯	◯
More likely to abandon a procedure at an early stage	◯	◯
Moved into a non-clinical role	◯	◯
You have become less committed and work strictly to your job description	◯	◯
You have learnt from the experience and improved your performance as a doctor	◯	◯
Left medicine and started a new career	◯	◯
The complaint or the way you were treated was related to discrimination	◯	◯
Retired early	◯	◯
Reduced your hours in the NHS to minimise your time there	◯	◯
Stopped working for the NHS and decided to work only in private practice or practice medicine elsewhere	◯	◯

Other (please specify)

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77. Indicate the extent you feel that any of the following changes would improve the process

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous internal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and with possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

14. PHQ-9 & GAD-7

78. Over the last 2 WEEKS, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	◯	◯	◯	◯
Feeling down, depressed, or hopeless	◯	◯	◯	◯
Trouble falling or staying asleep, or sleeping too much	◯	◯	◯	◯
Feeling tired or having little energy	◯	◯	◯	◯
Poor appetite or overeating	◯	◯	◯	◯
Feeling bad about yourself — or that you are a failure or have let yourself or your family down	◯	◯	◯	◯
Trouble concentrating on things, such as reading the newspaper or watching television	◯	◯	◯	◯
Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	◯	◯	◯	◯
Thoughts that you would be better off dead or of hurting yourself in some way	◯	◯	◯	◯

The IMPACT study

79. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- ◯ Not difficult at all
- ◯ Somewhat difficult
- ◯ Very difficult
- ◯ Extremely difficult

80. Over the last 2 WEEKS, how often have you been bothered by the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge	◯	◯	◯	◯
Not being able to stop or control worrying	◯	◯	◯	◯
Worrying too much about different things	◯	◯	◯	◯
Trouble relaxing	◯	◯	◯	◯
Being so restless that it is hard to sit still	◯	◯	◯	◯
Becoming easily annoyed or irritable	◯	◯	◯	◯
Feeling afraid as if something awful might happen	◯	◯	◯	◯

15. LDI

This scale is intended to estimate your current level of satisfaction with each of the eighteen areas of your life listed below. Please circle one of the numbers (1-7) beside each area. Numbers toward the left end of the seven-unit scale indicate higher levels of dissatisfaction, while numbers toward the right end of the scale indicate higher levels of satisfaction. Try to concentrate on how you currently feel about each area.

81. Please estimate your current level of satisfaction with each of the following areas of your life.

	1 Extremely dissatisfied	2	3	4	5	6 Extremely satisfied
Marriage	◯	◯	◯	◯	◯	◯
Relationship to spouse	◯	◯	◯	◯	◯	◯
Relationship to children	◯	◯	◯	◯	◯	◯
Financial situation	◯	◯	◯	◯	◯	◯
Employment	◯	◯	◯	◯	◯	◯
Recreation/Leisure	◯	◯	◯	◯	◯	◯
Social life	◯	◯	◯	◯	◯	◯
Physical health	◯	◯	◯	◯	◯	◯
Satisfaction with life	◯	◯	◯	◯	◯	◯
Expectations for future	◯	◯	◯	◯	◯	◯

16. Additional information (optional)

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82. (If relevant) Try to summarise as best you can your experience of the complaints process and how it made you feel

83. (if relevant) What were the most stressful aspects of the complaint?

84. What would you improve in the complaints system?

The IMPACT study

85. Other comments

17. Thank you for taking part in this study

Supplementary file S2:

Dichotomization, relationships with the type or timing of the complaint, and sensitivity analysis

Dichotomization

Depression was assessed through use of the *Physical Health Questionnaire* (PHQ-9) and respondents with a score greater than or equal to 10 were considered depressed. The *Generalized Anxiety Disorder* scale (GAD-7) assessed anxiety and respondents were considered to be anxious if had a score greater than or equal to 10. Avoidance was dichotomized as never displaying avoidance behavior and displaying at least some avoidance behavior. By dichotomizing avoidance, respondents were equally distributed among the two groups. That is, approximately 50% never displayed avoidance behavior and the other 50% of the respondents displayed at least some avoidance behavior. We therefore decided to use a median split to dichotomize hedging, since there were very few respondents (16.85%) that never displayed hedging behavior. Respondents with a score greater than or equal to 10 were part of the upper 50% with regard to hedging behavior and hence, this score was used to dichotomize hedging. In this manner, the respondents were also equally distributed among the two groups for hedging.

Relationships with the type or timing of the complaint

Similar to the other analyses, relative risks for the outcome were estimated by Poisson regression with robust error variance (Zou, 2014). To assess the effect of type/time of the complaint, a model was fitted with the item and the time/type of complaint as well as the interaction between item and time/type of complaint. Hedging, avoidance, anxiety or depression were used as the outcome. The p-values for the interactions were computed and the dependent false discovery rate procedure (Benjamini and Yekateuli, 2001) was applied, yielding the adjusted p-values depicted in supplementary tables 1-2.

Supplementary table 1. Adjusted p-values of interaction item with type of complaint

Item	Adjusted p-value of interaction item with type of complaint			
	Anxiety	Depression	Hedging	Avoidance
Actual support:				
-spoke to family/friends	1	1	1	1
-spoke to colleagues	1	1	1	1
-represented yourself	1	1	1	1
-medical professional support	1	1	1	1
-independent solicitor	1	1	1	1
-BMA employment advice service	1	1	1	1
-BMA counselling	1	1	1	1
Perceived support:				
-management	1	1	1	1
-colleagues	1	1	1	1
-medical professional support	1	1	1	1
-defense organisation	1	1	1	1
Process related issues:				
-normal process not followed	1	1	1	1
-documentary record was fair and accurate	1	1	1	1
-time scale was needlessly protracted	1	1	1	1
-informed of rights regardng representation	1	1	1	1
-inappropriate or vexacious use of risk process	1	1	1	1
-complaint due to dysfunctional team relationships	1	1	0.425	1
-felt victimised as a whistleblower	1	1	1	1
-clinical issues raised against me after the initial complaint	1	1	1	1
-felt bullied during the investigation	0.793	1	1	1
-managers used complaints processes to undermine my position	1	1	1	1
-colleagues used process to take advantage financially or professionally	1	1	1	1
Worrying about the complaint:				
-loss of livelihood	1	1	1	1
-public humiliation	1	1	1	1
-professional humiliation	1	1	1	1
-aspects of clinical practice restricted	1	1	1	1
-family problems	1	1	1	1
-marked record in the future	1	1	0.337	1
-financial costs	1	1	1	1

Supplementary table 2. Adjusted p-values of interaction item with time of complaint

Item	Adjusted p-value of interaction item with time of complaint: Hedging	Avoidance
Actual support:		
-spoke to family/friends	1	0.325
-spoke to colleagues	1	1
-represented yourself	1	1
-medical professional support	0.261	1
-independent solicitor	0.618	1
-BMA employment advice service	0.261	1
-BMA counselling	0.773	1
Perceived support:		
-management	0.997	1
-colleagues	0.26	1
-medical professional support	1	1
-defense organisation	0.773	1
Process related issues:		
-normal process not followed	0.775	1
-documentary record was fair and accurate	0.997	0.923
-time scale was needlessly protracted	0.073	0.127
-informed of rights regardng representation	1	0.127
-inappropriate or vexacious use of risk process	0.26	1
-complaint due to dysfunctional team relationships	0.073	0.207
-felt victimised as a whistleblower	0.26	0.304
-clinical issues raised against me after the initial complaint	0.637	1
-felt bullied during the investigation	0.455	0.127
-managers used complaints processes to undermine my position	0.997	0.127
-colleagues used process to take advantage financially or professionally	0.26	0.127
Worrying about the complaint:		
-loss of livelihood	0.073	0.244
-public humiliation	0.346	0.943
-professional humiliation	0.311	0.434
-aspects of clinical practice restricted	0.26	0.084
-family problems	0.073	0.693
-marked record in the future	0.26	0.923
-financial costs	0.073	0.207

Imputation

In accordance with the analysis of Bourne et al. (2015), a two-step approach to imputation was used for composite scales (depression, anxiety and hedging). First, the respondent's mean of non-missing items was imputed if at least 80% of the items of the composite scale were nonmissing. Second, multiple imputation at the scale level was performed for the remaining respondents. The missing values for avoidance were imputed by imputing the three items of avoidance separately. Multiple imputation was performed by using the fully conditional specification approach, in which a separate imputation model is specified for every variable where missing values are to be imputed. Logistic regression was used for variables with categorical values and predictive mean matching regression for variables with integer values (i.e. hedging, depression and anxiety). All imputation models were performed with 50 iterations and the number of imputations was set to 100. Hence, this resulted in a total of 100 completed datasets. After the imputations, convergence plots were inspected. In addition, in order to see whether the imputed values of the continuous variables were reasonable, density plots of the observed and the imputed data are checked. When the latter yielded no problematic findings, the completed datasets were analysed separately and their results combined using Rubin's Rules (Rubin, 1987).

Sensitivity analysis

As in the previous paper, the last analysis consisted out of a sensitivity analysis to assess the impact of item non-response. For the sensitivity analysis a not missing at random assumption is set for key variables hedging, avoidance, anxiety and depression. We assumed that hedging, avoidance, depression and anxiety were worse when the value was missing.

For anxiety (GAD-7) and depression (PHQ-9), we increased each imputed value by a certain number *d*. This number was obtained in a manner similar-though slightly different-to the method used in the previous paper. A random number δ was first sampled from a normal distribution with mean half of the standard deviation of the distribution of PHQ-9/GAD-7, and the standard deviation the square root of this value. Thereafter, $d=\max(\delta,1)$, which restricts *d* to imply an increase in PHQ-9/GAD-7. Consequently, *d* is added to the imputed value under the missingness at random instead of δ. The newly imputed value is then rounded and bound at the maximum possible value. In that way, an integer number on the original scale is obtained.

For avoidance, missings were assumed to have displayed at least some avoiding behavior. Since the scale is dichotomized prior to the analysis, the actual score on the scale is irrelevant.

Finally, a different method for hedging was used than the one in the previous paper. We opted for a new approach considering that, for this analysis, we used a median split to dichotomize hedging. First, we specified a binomial logistic regression model with hedging as the outcome. The predictors in this model were the same as those used in the imputation model for hedging during MI. This model was fitted using respondents with no missing values for hedging and the linear predictor was calculated for each of the respondents. Thereafter, a random number δ was sampled from a normal distribution with mean half the standard deviation of the distribution of the linear predictor scores and standard deviation the square root of this value. The number *d* was specified in a similar way as in the sensitivity of anxiety in depression, that is $d=\max(\delta,0.2\left(\frac{e^{lp}}{1+e^{lp}}\right))$. Consequently, there is a minimum increase of 20% in the predicted probability on hedging. The logistic model was then fitted using respondents with a missing value for hedging, the linear predictor was calculated and *d* was added to the value of the linear predictor. The inverse logit of the new value of the linear predictor was then calculated to obtain the predicted probability for each of the non-responders. Then, the predicted probability was used in a Bernoulli trial to decide whether the respondent was classified as the lower 50% of hedging or the upper 50%.

The results of the analyses using the complete case dataset and multiply imputed datasets under the MAR and MNAR assumption can be found in supplementary tables 3-10.

Supplementary table 3. Descriptives hedging

	Complete cases N (%)	Imputations	Sens Anal
No hedging	2278 (49.18%)	2939 (47.84%)	2736 (44.53%)
Hedging	2354 (50.82%)	3204 (52.16%)	3408 (55.47%)

Supplementary table 4. RRs, hedging

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.32 (1.19-1.46)	1.28 (1.17-1.41)	1,23 (1,12-1,36)
-spoke to colleagues	1.20 (1.05-1.36)	1.23 (1.09-1.40)	1,22 (1,07-1,39)
-represented yourself	0.98 (0.92-1.04)	0.99 (0.93-1.05)	0,99 (0,93-1,05)
-medical professional support	1.24 (1.17-1.33)	1.22 (1.15-1.30)	1,20 (1,13-1,28)
-independent solicitor	1.01 (0.90-1.12)	0.98 (0.89-1.09)	0,98 (0,88-1,10)
-BMA employment advice service	0.79 (0.71-0.88)	0.81 (0.74-0.90)	0,82 (0,73-0,91)
-BMA counselling	0.99 (0.89-1.11)	0.96 (0.86-1.07)	0,95 (0,85-1,07)
Perceived support:			
-management	0.98 (0.96-1.00)	0.98 (0.96-1.00)	0,98 (0,96-1,01)
-colleagues	0.95 (0.93-0.98)	0.96 (0.94-0.98)	0,96 (0,94-0,99)
-medical professional support	0.98 (0.95-1.01)	0.98 (0.95-1.01)	0,99 (0,95-1,02)
-defense organisation	1.03 (1.00-1.06)	1.03 (1.00-1.06)	1,03 (1,00-1,06)
Process related issues:			
-normal process not followed	1.01 (0.99-1.03)	1.01 (0.99-1.03)	1,01 (0,99-1,03)
-documentary record was fair	0.98 (0.95-1.00)	0.98 (0.96-1.00)	0,98 (0,96-1,00)
-time scale was protracted	1.05 (1.03-1.07)	1.05 (1.03-1.07)	1,04 (1,02-1,06)
-informed of bringing representation	0.96 (0.94-0.98)	0.97 (0.95-0.99)	0,97 (0,95-0,99)
-inappropriate use of risk process	1.03 (1.00-1.05)	1.02 (1.00-1.04)	1,01 (1,00-1,03)
-complaint due to dysfunctional team	0.99 (0.97-1.01)	0.99 (0.97-1.01)	0,99 (0,97-1,01)
-felt victimised	0.99 (0.96-1.02)	0.99 (0.97-1.01)	0,99 (0,97-1,01)
-clinical issues after complaint	1.05 (1.02-1.07)	1.04 (1.01-1.06)	1,03 (1,01-1,06)
-felt bullied	1.03 (1.01-1.05)	1.03 (1.01-1.05)	1,02 (1,00-1,04)
-managers undermined position	1.01 (0.99-1.04)	1.01 (0.99-1.03)	1,01 (0,99-1,03)
-colleagues took advantage	1.02 (1.00-1.05)	1.02 (1.00-1.04)	1,02 (1,00-1,04)
Worrying about the complaint:			
-loss of livelihood	1.11 (1.09-1.13)	1.11 (1.09-1.13)	1,10 (1,08-1,12)
-public humiliation	1.14 (1.12-1.16)	1.13 (1.12-1.15)	1,12 (1,10-1,14)
-professional humiliation	1.15 (1.12-1.17)	1.14 (1.12-1.16)	1,12 (1,10-1,15)
-practice restricted	1.10 (1.08-1.12)	1.10 (1.08-1.12)	1,09 (1,07-1,11)
-family problems	1.12 (1.10-1.14)	1.11 (1.09-1.13)	1,10 (1,08-1,12)
-marked record	1.14 (1.12-1.17)	1.13 (1.11-1.16)	1,12 (1,10-1,14)
-financial costs	1.11 (1.09-1.14)	1.11 (1.09-1.13)	1,10 (1,08-1,12)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary table 5. Descriptives avoidance

	Complete cases N (%)	Imputations	Sens Anal
No avoidance	2535 (54.32%)	3221 (52.43%)	2535 (41.26%)
Avoidance	2132 (45.68%)	2923 (47.57%)	3609 (58.74%)

Supplementary table 6. RR's, avoidance

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.13 (1.02-1.24)	1.15 (1.05-1.27)	1.08 (1.01-1.15)
-spoke to colleagues	0.97 (0.86-1.09)	1.01 (0.90-1.13)	1.00 (0.92-1.09)
-represented yourself	1.08 (1.01-1.15)	1.07 (1.01-1.15)	1.03 (0.98-1.08)
-medical professional support	1.19 (1.11-1.28)	1.19 (1.12-1.27)	1.13 (1.07-1.18)
-independent solicitor	1.20 (1.08-1.33)	1.19 (1.08-1.30)	1.13 (1.05-1.22)
-BMA employment advice service	1.25 (1.15-1.36)	1.24 (1.14-1.34)	1.12 (1.05-1.19)
-BMA counselling	1.29 (1.17-1.43)	1.25 (1.14-1.38)	1.15 (1.07-1.24)
Perceived support:			
-management	0.91 (0.89-0.94)	0.91 (0.89-0.93)	0.95 (0.93-0.96)
-colleagues	0.90 (0.88-0.92)	0.90 (0.89-0.92)	0.94 (0.93-0.96)
-medical professional support	0.98 (0.95-1.01)	0.98 (0.95-1.01)	0.99 (0.97-1.01)
-defense organisation	0.96 (0.93-0.99)	0.96 (0.93-0.99)	0.98 (0.96-1.00)
Process related issues:			
-normal process not followed	1.08 (1.06-1.11)	1.07 (1.05-1.09)	1.04 (1.03-1.06)
-documentary record was fair	0.93 (0.91-0.95)	0.94 (0.92-0.96)	0.96 (0.94-0.98)
-time scale was protracted	1.11 (1.09-1.14)	1.10 (1.07-1.12)	1.06 (1.04-1.07)
-informed of bringing representation	0.95 (0.93-0.98)	0.96 (0.94-0.98)	0.97 (0.96-0.99)
-inappropriate use of risk process	1.11 (1.09-1.13)	1.10 (1.08-1.12)	1.06 (1.04-1.07)
-complaint due to dysfunctional team	1.09 (1.07-1.11)	1.08 (1.06-1.10)	1.05 (1.03-1.06)
-felt victimised	1.10 (1.08-1.13)	1.09 (1.07-1.11)	1.06 (1.04-1.07)
-clinical issues after complaint	1.14 (1.11-1.16)	1.11 (1.08-1.13)	1.07 (1.06-1.09)
-felt bullied	1.13 (1.11-1.15)	1.11 (1.09-1.13)	1.07 (1.06-1.09)
-managers undermined position	1.13 (1.11-1.15)	1.11 (1.09-1.13)	1.07 (1.06-1.08)
-colleagues took advantage	1.13 (1.11-1.16)	1.11 (1.09-1.14)	1.07 (1.06-1.09)
Worrying about the complaint:			
-loss of livelihood	1.15 (1.13-1.17)	1.14 (1.12-1.16)	1.09 (1.07-1.10)
-public humiliation	1.15 (1.13-1.18)	1.15 (1.12-1.17)	1.09 (1.08-1.11)
-professional humiliation	1.16 (1.13-1.19)	1.15 (1.13-1.18)	1.09 (1.07-1.11)
-practice restricted	1.14 (1.12-1.16)	1.14 (1.11-1.16)	1.08 (1.07-1.10)
-family problems	1.15 (1.13-1.17)	1.14 (1.12-1.16)	1.08 (1.07-1.10)
-marked record	1.14 (1.12-1.17)	1.14 (1.11-1.16)	1.08 (1.06-1.10)
-financial costs	1.16 (1.14-1.18)	1.15 (1.13-1.17)	1.09 (1.08-1.11)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary table 7. Descriptives depression

	Complete cases N (%)	Imputations	Sens Anal
No depression	1710 (81.96%)	1846 (81.80%)	1818(80.55%)
Depression	376 (18.02%)	411 (18.20%)	439 (19.45%)

Supplementary table 8. RRs, depression

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.54 (1.10-2.16)	1.46 (1.06-2.02)	1.42 (1.04-1.96)
-spoke to colleagues	0.58 (0.44-0.76)	0.64 (0.48-0.84)	0.64 (0.49-0.84)
-represented yourself	1.31 (1.07-1.60)	1.29 (1.06-1.57)	1.27 (1.05-1.54)
-medical professional support	1.34 (1.09-1.64)	1.31 (1.07-1.60)	1.29 (1.06-1.57)
-independent solicitor	1.91 (1.50-2.44)	1.85 (1.45-2.36)	1.82 (1.44-2.30)
-BMA employment advice service	2.14 (1.74-2.64)	2.06 (1.68-2.52)	1.99 (1.62-2.43)
-BMA counselling	2.06 (1.62-2.62)	1.91 (1.50-2.44)	1.87 (1.47-2.37)
Perceived support:			
-management	0.74 (0.68-0.81)	0.77 (0.71-0.83)	0.77 (0.72-0.83)
-colleagues	0.75 (0.70-0.80)	0.77 (0.72-0.83)	0.78 (0.73-0.83)
-medical professional support	0.84 (0.76-0.92)	0.84 (0.77-0.93)	0.84 (0.77-0.92)
-defense organisation	0.82 (0.76-0.90)	0.84 (0.77-0.91)	0.84 (0.77-0.91)
Process related issues:			
-normal process not followed	1.16 (1.09-1.24)	1.15 (1.08-1.23)	1.15 (1.08-1.22)
-documentary record was fair	0.77 (0.72-0.83)	0.80 (0.75-0.86)	0.80 (0.75-0.86)
-time scale was protracted	1.20 (1.12-1.29)	1.20 (1.12-1.29)	1.19 (1.11-1.28)
-informed of bringing representation	0.95 (0.88-1.02)	0.96 (0.89-1.03)	0.95 (0.89-1.02)
-inappropriate use of risk process	1.20 (1.13-1.28)	1.18 (1.11-1.26)	1.18 (1.11-1.25)
-complaint due to dysfunctional team	1.23 (1.16-1.30)	1.19 (1.12-1.25)	1.18 (1.12-1.25)
-felt victimised	1.28 (1.21-1.35)	1.23 (1.17-1.30)	1.23 (1.16-1.29)
-clinical issues after complaint	1.30 (1.23-1.37)	1.22 (1.15-1.29)	1.22 (1.15-1.28)
-felt bullied	1.32 (1.25-1.40)	1.28 (1.22-1.35)	1.27 (1.21-1.34)
-managers undermined position	1.32 (1.25-1.39)	1.27 (1.20-1.34)	1.26 (1.20-1.32)
-colleagues took advantage	1.27 (1.21-1.34)	1.22 (1.16-1.29)	1.22 (1.15-1.28)
Worrying about the complaint:			
-loss of livelihood	1.43 (1.34-1.53)	1.43 (1.34-1.53)	1.40 (1.31-1.50)
-public humiliation	1.40 (1.30-1.50)	1.38 (1.29-1.48)	1.36 (1.27-1.45)
-professional humiliation	1.58 (1.44-1.72)	1.53 (1.40-1.66)	1.48 (1.37-1.61)
-practice restricted	1.40 (1.31-1.49)	1.39 (1.31-1.47)	1.35 (1.28-1.44)
-family problems	1.48 (1.39-1.57)	1.46 (1.38-1.55)	1.43 (1.35-1.52)
-marked record	1.56 (1.42-1.72)	1.53 (1.40-1.67)	1.47 (1.35-1.61)
-financial costs	1.45 (1.36-1.55)	1.43 (1.34-1.52)	1.40 (1.31-1.48)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary table 9. Descriptives anxiety

	Complete cases N (%)	Imputations	Sens Anal
No anxiety	1726 (83.95%)	1891 (83.76%)	1872 (82.93%)
Anxiety	330 (16.05%)	366 (16.24%)	385 (17.07%)

Supplementary table 10. RRs, anxiety

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.57 (1.09-2.24)	1.58 (1.11-2.26)	1.56 (1.09-2.22)
-spoke to colleagues	0.62 (0.46-0.84)	0.69 (0.51-0.94)	0.70 (0.52-0.95)
-represented yourself	1.20 (0.97-1.50)	1.19 (0.96-1.47)	1.18 (0.95-1.46)
-medical professional support	1.08 (0.88-1.34)	1.15 (0.93-1.42)	1.14 (0.93-1.41)
-independent solicitor	1.88 (1.44-2.45)	1.70 (1.29-2.23)	1.70 (1.31-2.21)
-BMA employment advice service	1.75 (1.38-2.22)	1.71 (1.35-2.17)	1.69 (1.33-2.13)
-BMA counselling	1.88 (1.42-2.47)	1.74 (1.33-2.29)	1.71 (1.31-2.25)
Perceived support:			
-management	0.78 (0.72-0.85)	0.80 (0.74-0.87)	0.80 (0.74-0.87)
-colleagues	0.76 (0.71-0.82)	0.78 (0.73-0.84)	0.79 (0.73-0.84)
-medical professional support	0.87 (0.78-0.96)	0.87 (0.79-0.96)	0.87 (0.79-0.96)
-defense organisation	0.87 (0.79-0.95)	0.87 (0.79-0.95)	0.87 (0.80-0.95)
Process related issues:			
-normal process not followed	1.20 (1.13-1.29)	1.18 (1.10-1.26)	1.17 (1.10-1.25)
-documentary record was fair	0.78 (0.72-0.85)	0.81 (0.75-0.87)	0.81 (0.76-0.88)
-time scale was protracted	1.19 (1.10-1.28)	1.16 (1.08-1.26)	1.16 (1.08-1.25)
-informed of bringing representation	0.94 (0.86-1.02)	0.94 (0.87-1.02)	0.94 (0.87-1.01)
-inappropriate use of risk process	1.19 (1.11-1.28)	1.17 (1.10-1.25)	1.17 (1.10-1.25)
-complaint due to dysfunctional team	1.22 (1.15-1.30)	1.19 (1.12-1.26)	1.18 (1.11-1.25)
-felt victimised	1.27 (1.19-1.35)	1.22 (1.15-1.30)	1.22 (1.15-1.29)
-clinical issues after complaint	1.27 (1.19-1.35)	1.20 (1.13-1.28)	1.20 (1.13-1.27)
-felt bullied	1.33 (1.25-1.42)	1.30 (1.22-1.38)	1.29 (1.22-1.36)
-managers undermined position	1.30 (1.23-1.38)	1.25 (1.18-1.33)	1.25 (1.18-1.32)
-colleagues took advantage	1.26 (1.19-1.34)	1.22 (1.15-1.30)	1.22 (1.15-1.29)
Worrying about the complaint:			
-loss of livelihood	1.40 (1.30-1.50)	1.40 (1.30-1.50)	1.38 (1.29-1.48)
-public humiliation	1.45 (1.34-1.56)	1.43 (1.33-1.54)	1.40 (1.30-1.51)
-professional humiliation	1.53 (1.39-1.68)	1.52 (1.38-1.66)	1.48 (1.36-1.62)
-practice restricted	1.33 (1.24-1.42)	1.33 (1.25-1.42)	1.32 (1.23-1.40)
-family problems	1.44 (1.35-1.54)	1.44 (1.35-1.53)	1.42 (1.34-1.51)
-marked record	1.50 (1.36-1.66)	1.49 (1.36-1.64)	1.46 (1.33-1.61)
-financial costs	1.40 (1.31-1.50)	1.38 (1.29-1.47)	1.36 (1.28-1.45)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary file S3: Summary box to illustrate factors associated with a positive or negative impact on doctor's wellbeing and clinical practice when there is an investigation into a complaint.

Factors associated with a negative impact on doctors' wellbeing	Factors associated with a positive impact on doctors' wellbeing
Prolonged timescale	Rapid resolution with fixed timescales
Failure to follow correct process	Accurate record keeping of meetings shared promptly with all parties
Failure to support whistleblowers	Being kept informed at all times of progress in the investigation
Bullying	Support from management
Being excluded from work and prevented from accessing colleagues support	Being able to speak to and seek support from colleagues
Inappropriate use of complaints processes by managers and colleagues	Being informed about rights regarding representation

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Contained in the title
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2-3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5-7
Objectives	3	State specific objectives, including any pre-specified hypotheses	7
Methods			
Study design	4	Present key elements of study design early in the paper	8
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	8
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	8
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	10-12
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	10-12
Bias	9	Describe any efforts to address potential sources of bias	*COMPARISON OF SAMPLE WITH SAMPLING FRAME: p 8 and table 1. MISSINGNESS (AT RANDOM/NOT AT RANDOM): p 13-14*
Study size	10	Explain how the study size was arrived at	Limited by the response rate to the survey
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and	12

		why	
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	13-14
		(*b*) Describe any methods used to examine subgroups and interactions	13
		(*c*) Explain how missing data were addressed	13
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	N/A
		(*e*) Describe any sensitivity analyses	p13-14, supplementary file S2
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	8
		(b) Give reasons for non-participation at each stage	8
		(c) Consider use of a flow diagram	N/A
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Tables 1 and 2
		(b) Indicate number of participants with missing data for each variable of interest	Table 3
Outcome data	15*	Report numbers of outcome events or summary measures	Table 4
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Table 4
		(*b*) Report category boundaries when continuous variables were categorized	p11-12, supplementary file S2
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses	p18, supplementary file S2
Discussion			
Key results	18	Summarise key results with reference to study objectives	19
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	19
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from	20-22

		similar studies, and other relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	20
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	25

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Doctors' perception of support and the processes involved in complaints investigations and how these relate to welfare and defensive practice: a cross sectional survey of UK physicians

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Keywords:	defensive practice, physician health, anxiety, depression, medical regulation

Paper:

Doctors' perception of support and the processes involved in complaints investigations and how these relate to welfare and defensive practice: a cross sectional survey of UK physicians

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Key words: anxiety, depression, defensive practice, physicians, regulation

Abstract

Objective How adverse outcomes and complaints are managed may significantly impact on physician wellbeing and practice. We aimed to investigate how depression, anxiety and defensive medical practice are associated with doctors actual and perceived support, behaviour of colleagues and process issues regarding how complaints investigations are carried out.

Design A survey study. Respondents were classified into three groups: no complaint, recent/current complaint (within 6 months) or past complaint. Each group completed specific surveys.

Setting British Medical Association (BMA) members were invited to complete an online survey.

Participants 95,636 members of the BMA were asked to participate. 7926(8.3%) completed the survey of whom 1780(22.5%) had no complaint, 3887 (49.1%) a past complaint and 2257(28.5%) a recent/current complaint. We excluded those with no complaints leaving 6144 in the final sample.

Primary outcomes measures We measured anxiety and depression using the generalized anxiety disorder scale (GAD-7) and physical health questionnaire (PHQ-9). Defensive practice was assessed using a new measure for avoidance and hedging.

Results Most felt supported by colleagues (61%), only 31% felt supported by management. Not following process (56%), protracted timescales (78%), vexatious complaints (49%), feeling bullied (39%), or victimised for whistleblowing (20%), and using complaints to undermine (56%) were reported. Perceived support by management (RR depression:0.77,

95% CI 0.71-0.83 RR anxiety:0.80, 95% CI 0.74-0.87), speaking to colleagues (RR:0.64, 95% CI 0.48-0.84 and RR:0.69, 95% CI 0.51-0.94 respectively), fair/accurate documentation (RR depression:0.80, 95% CI 0.75-0.86; RR anxiety:0.81, 95% CI 0.75-0.87), and being informed about rights, correlated positively with wellbeing and reduced defensive practice. Doctors worried most about professional humiliation following a complaint investigation (80%).

Conclusions Poor process, prolonged timescales, and vexatious use of complaints systems are associated with decreased psychological welfare and increased defensive practice. In contrast perceived support from colleagues and management is associated with a reduction in these effects.

Strengths and limitations of this study

Strengths

- A large number of physicians responded (10,930) and 6,144 who had experienced a complaint completed the survey.
- Aspects of mental distress have been documented using validated questionnaires.
- We guaranteed to doctors filling in the survey that their responses were anonymous and untraceable; as a result we feel respondents would have been more likely to be honest and open with their opinions.

Limitations

- As we asked about past complaints, recall bias should be considered when interpreting the responses.
- The overall response rate of 11.4% means that ascertainment bias must be considered when looking at the results, although it should also be borne in mind that those most effected by a complaints process may have avoided taking part in the

survey and doctors who have changed profession or been erased from the register would not have been included in the survey.

Introduction

We have previously reported on the impact of complaints procedures on the welfare, health and clinical practice of doctors in the United Kingdom (UK)[1]. In this cross-sectional survey study we used validated questionnaires to show doctors who had received a recent complaint were twice as likely to report suicidal thoughts, 77% more likely to suffer moderate to severe depression and had twice the risk of moderate to severe anxiety compared to those with no history of a complaint. The association was strongest when a complaint involved a referral to the UK regulator (the GMC). Doctors with a recent or current complaint also reported increased sleep difficulties, anger and irritability, and relationship problems. We further found that 80% of doctors who responded to the survey practised medicine more defensively following complaints against themselves or colleagues. This involved "hedging", which includes performing more tests than necessary, over-referral, and overprescribing as well as "avoidance" which includes avoiding procedures, not accept high-risk patients or abandoning procedures early. We have also reported qualitative data on doctor's experiences of complaints[2]. Physicians described feeling emotionally distressed; powerless, fearful of the consequences, unsupported, and that their complaint was unfair. They reported that significant stressors were the unpredictability and prolonged duration of procedures, incompetence and poor communication by managers and a feeling that processes are biased in favor of complainants. Many said they practiced defensively, limited their practice or changed career after a complaint. Very few physicians reported positive outcomes from complaints investigations.

In December 2015, Verhoef and colleagues[3] carried out a semi-structured interview study on the impact of disciplinary processes on doctors in the Netherlands. They found that disciplinary processes can have a profound psychological and professional impact and that

the time taken to carry out an investigation was a main contributing factor. In a study published in the British Medical Journal, Jain and Ogden[4] described the impact of patient complaints on general practitioners in the United Kingdom and reported an association with anger, depression and suicide. It is important to note that they also described clinicians involved in complaints practicing medicine more defensively.

Others have also warned of the unintended consequences of regulation; McGivern and Fischer have argued that regulation is often focused on high profile cases that promote the view that more regulation is required[5]. This approach fails the "invisible majority" of doctors who have never been accused of malpractice but who nevertheless become anxious about regulation and engage in defensive practice.

Recently Reisch and colleagues[6], in a survey of breast pathologists, reported that over 80% ordered additional tests in response to malpractice fears, recommended additional surgical sampling, or asked for further opinions. The authors concluded that these defensive practices have important implications for cost and for patient-safety. The data of Studdart et al[7] support these findings, they found that 93% of doctors practiced defensively in high liability environments, 43% of these ordered imaging when it was not necessary and 42% had restricted their practice in the previous three years to reduce their exposure to perceived risk.

Litigation, complaints and investigations are part of the processes that are designed to protect patients and maintain appropriate clinical standards. However, the burden and stress associated with these processes are clearly having unintended consequences and it may be argued that when examined as a whole, these structures may be causing more harm to patient care than good. Whilst the regulatory system may protect patients from the misconduct of a relatively small number of doctors, it has a perverse effect on the majority

of doctors who become preoccupied by defensive practice.

In our previous paper on the impact of complaints on doctors we reported on the association between complaints procedures and doctors' wellbeing[1]. We did not examine what aspects of the complaints processes or the behaviour of colleagues impacts either positively or negatively on doctor's wellbeing and health. This would be of interest as this information could then be used to amend processes to make them less damaging.

In this paper we investigate whether depression, anxiety and defensive medical practice is associated with the support that is sought by doctors during complaints processes, their perceived support, the behaviour of colleagues as well as factors relating to complaints processes. Our expectation was that support from management and colleagues would ameliorate the impact of complaints processes. Conversely we expected examples of poor process and behaviour would be associated with a negative effect of doctor's wellbeing and increase defensive practice.

Methods

Design and participants

The British Medical Association (BMA) is the trade union and professional body representing 170,000 doctors in the UK. Membership is voluntary. In November 2012, we invited 95 636 members of the BMA, who had previously consented to take part in research to participate in the study. We sent them an email containing an information sheet describing the study and a link to an encrypted online questionnaire using Survey Monkey. We guaranteed to the participants that their responses would be both anonymous and untraceable, all consented to take part before starting the questionnaire.

The survey was open for two weeks during which time three reminders were sent out. In total, 10 930 (11.4%) doctors responded. Of those, we excluded 696 (6.4%) because they completed the demographics section only, and 121 (1.1%) as a technical error led to them being given incorrect sections to fill in. In total, 7926 (72.5%) doctors completed the survey of whom 1380 did not fill in some sections but we included them in the full analysis. Of the 7926 participants, 1780 (22.5%) had no complaint, 3889 (49.1%) had a past complaint and 2257 (28.5%) had a recent/current complaint. Participants with no complaints were excluded from this analysis relating to the experience of complaints processes as well as participants who did not answer any of the questions on the process, leaving us with 6144 participants in the final sample, of which 63% had a past complaint and 37% had a recent or current complaint. We compared our study population to the characteristics of the entire BMA database to see if our cohort of members was representative. We found our population was similar in relation to gender, but slightly older with more consultants and GP's and fewer from ethnic minorities compared to the BMA database. Details of this comparison can be found in table 1.

The different types of complaint or investigation that were considered in the study are described below and the breakdown of the number of each complaint type is listed in table 2. We asked doctors to complete the survey based on the complaint they perceived had the most impact on them (in case there was overlap between different complaints procedures):

Informal (21%): this involves the complainant talking directly to the individual concerned about their complaint. If not resolved locally it can be escalated.

Formal (50%): this is a written complaint, most often to the chief executive or an organization that required an investigation to be carried out and a written response given. The outcome may be that disciplinary action or referral to the GMC by an employer ensues.

Serious Untoward Incident (SUI) (12%): an SUI generally relates to a poor clinical outcome, unexpected death or threat to public health. However it may also occur if an event may damage the reputation or lead to a lack of confidence in a service. Such an investigation must be both commissioned and undertaken independently of the care that the investigation is considering. Again the outcome may lead to a recommendation for disciplinary action or referral to the regulator (the GMC).

General Medical Council (14%): a complaint about a doctor can be made to the GMC not only for concerns about their clinical practice, but also their personal behaviour. The GMC can suspend doctors from work whilst they investigate them, issue warnings and undertakings, restrict a doctor's practice or make them work under supervision, suspend them or permanently strike them off the medical register and prevent them from working.

The survey

We used a cross-sectional survey design where participants were streamed into three

groups: current/recent complaint (on-going or resolved within the last 6 months), past complaint (resolved more than 6 months ago) and no complaints (not included in this analysis). Each group completed a slightly different version of the questionnaire. Participants in the current complaints and no complaints group were asked about their current mood and health whereas the past complaints group were also asked to respond about their mood and health at the time of the complaint. We trialled the questions on process on 20 doctors of different grade and specialty and incorporated their feedback into the questionnaire design. We have included the questionnaire as supplementary online information (see online supplementary file 1). Further information on the questionnaire can be found in Bourne et al. (2015)[1]. We estimate that the time required to fill in the entire questionnaire was thirty minutes.

Measures

Complaints exposure and process

We asked physicians 75 questions about their complaint(s), whether it had occurred in the past or was current. We generated the questions from the pilot study and also from Bark and colleagues[7]. These included why the complaint had occurred, who made it, how long the process went on for, the outcome, as well as support sought and obtained. Whilst the majority of the questions used a 5-point scale, some questions were qualitative and a few were yes/no.

Support sought by doctors during complaints processes

Eight questions were asked about what support was sought by doctors during the complaints process. Each question related to support from a different source and an option was given to answer yes or no.

Perceived support

Agreement with fifteen statements on perceived support was measured using a 5-point scale from "strongly agreed" to "strongly disagreed". Respondents were also able to mark the questions on perceived support as "not applicable".

Worrying about outcome

Seven possible outcomes were listed in the survey and doctors were asked to what extent they were worried about them ranging on a 5-point scale from "not at all" to "a lot".

Factors relating to complaints processes and behaviour of colleagues

Issues about the process followed and colleagues' behaviour in relation to the complaint were assessed using eleven statements. The doctor was asked to what extent these applied on a 5-point scale from "not at all" to "definitely".

Depression and anxiety

Current depression was assessed using the *Physical Health Questionnaire* (PHQ-9)[8,9]. Respondents with a score ≥10 were considered depressed. We used the *Generalized Anxiety Disorder* scale (GAD-7)[10] to assess current anxiety, and respondents were considered to be anxious if they had a score ≥10. Both are well validated and standardised measures of symptom severity of depression and anxiety respectively.

Defensive medical practice

Following a review of the literature, we developed twenty items to measure defensive medical practice[6,11,12]. Twelve further items were developed from the pilot study. These were rated either with a yes/no response or on a 5-point scale. After carrying out an exploratory factor analysis, two underlying factors were identified. The first related to

carrying out too many investigations and being over cautious regarding the management of patients – we called this "hedging" and was measured on a scale from 0 to 36 (9 items, for example "carried out more tests than necessary", "referred patient for second opinion more than necessary" and "admitted patients to the hospital when the patient could have been discharged home safely or managed as an outpatient", Cronbach's α=0.92). The second factor we called "avoidance" as it related to avoiding some areas of practice, this was measured on a scale from 0 to 12 (3 items, "stopped doing aspects of my job", "not accepting high risk patients in order to avoid possible complications", and "avoiding a particular type of invasive procedure", Cronbach's α=0.77).

Avoidance was dichotomized as never displaying avoidance behaviour and displaying at least some avoidance behaviour. Approximately half of the respondents (54%) never displayed avoidance behaviour. There were few respondents (16%) that never displayed hedging behaviour, therefore we decided to use a median split to dichotomize hedging. A score below the median (<10) would then indicate that the respondent never or seldom engaged in hedging, whilst a score above the median (≥10) would indicate that the respondent sometimes or often engaged in hedging behaviour.

Statistical analysis

To analyse associations with defensive practice, only doctors with an ongoing/recent complaint (n=2257) and doctors with a past complaint (n=3887) were included. For the analysis on depression and anxiety, only doctors with an ongoing/recent complaint were included since there are too many confounding variables that could have influenced the current level of depression or anxiety of doctors with a past complaint.

The outcome variables (depression, anxiety, avoidance, hedging) were dichotomized as described above. To examine relationships with the outcome variables, a Poisson regression analysis with robust error variance was used to estimate relative risks[13]. When using items of perceived support, we withheld the possible answer "not applicable" from the analyses since this did not convey any information on levels of perceived support. Relative risks were visualized using forest plots. No significance testing was used, results were presented with 95% confidence intervals to quantify the uncertainty. We assessed whether relationships varied with the type or timing of the complaint using interaction terms. We used the dependent false discovery rate procedure as a guide to explore potentially relevant interaction terms[14]. The procedure was used once for type of complaint (116 interaction terms), and once for timing of complaint (58 interaction terms), both using a 5% alpha level.

As is typical in survey research, we observed item non-response. To be consistent with our previous analysis[1], missing data was addressed using multiple stochastic imputation (MI). Using this approach, missing values were replaced by 100 plausible values leading to 100 completed datasets. Replacing missing values multiple times represents the uncertainty about the imputed values (see supplementary file S2).

A sensitivity analysis was then performed to assess the impact of item non-response by comparing the results of complete case analysis to results after MI, which assumes

'missingness at random'. In addition, a second MI analysis was performed assuming 'missingness not at random' for the outcome variables because these are based on sensitive questions. It is plausible respondents with missing data might have been more anxious or depressed, or more likely to display hedging or avoidance (see supplementary file S2). Results for the complete case analysis for MI based on missingness at random and for MI based on missingness not at random were similar, hence we only report results for standard MI (assuming missingness at random). SAS was used for the data analysis (V.9.4, SAS Institute, Cary, North Carolina, USA). MIs were performed using the mice package[15] in R[16].

Results

Descriptive statistics

Detailed information on the descriptive statistics of items assessing different aspects of actual support, perceived support, process related issues and worry about the consequences of a complaint are seen in table 3. Most physicians discussed their complaint with family, friends, or colleagues.

Perceived support: The majority (61%) felt supported by their colleagues, whereas only 31% reported they felt supported by management.

Process issues: 56% said normal process was not followed. For example 78% indicated that the timescale was needlessly protracted, 27% did not feel they were informed about representation, and 17% thought the documentary record was not fair and accurate.

Behaviour: 20% felt victimized for being a whistle-blower and 39% reported being bullied during the investigation. Inappropriate or vexatious abuse of the complaints system was reported by 49% of physicians, 32% felt managers used a complaint to undermine them, and 24% reported colleagues used a complaint to take advantage either financially or professionally.

Most respondents worried about the consequences of the complaint. The most common concerns were professional or public humiliation (80% and 70% respectively) and having a marked record in the future (79%).

Psychological welfare and health

The relative risks for associations with depression and anxiety are presented in table 3 and figure 1.

Actual and perceived support

Depression and anxiety were more common amongst doctors who reported speaking to family or friends about their complaint (RR depression: 1.46, 95% CI 1.06-2.02; RR anxiety: 1.58, 95% CI 1.11-2.26), when they engaged independent legal advice (RR depression: 1.85, 95% CI 1.45-2.36; RR anxiety: 1.70, 95% CI 1.29-2.23), accessed support from the BMA employment advice service (RR depression: 2.06, 95% CI 1.68-2.52; RR anxiety: 1.71, 95% CI 1.35-2.17), or BMA counselling service (RR depression: 1.91, 95% CI 1.50-2.44; RR anxiety: 1.74, 95% CI 1.33-2.29). The risk ratios for both depression and anxiety were lowest when doctors reported they had spoken to their colleagues (RR: 0.64, 95% CI 0.48-0.84; and RR: 0.69, 95% CI 0.51-0.94 respectively).

Perceived support from management was associated with a less depression and anxiety (RR depression: 0.77, 95% CI 0.71-0.83; RR anxiety: 0.80, 95% CI 0.74-0.87). The perception of support from medical professional organizations, and defence organizations also related to lower rates of depression and anxiety (RRs depression: 0.84 for both items; RRs anxiety: 0.87 for both items).

Process related issues: When the timescale for a complaints investigation was protracted this was associated with greater anxiety and depression (RR: 1.16, 95% CI 1.08-1.26; and RR: 1.20, 95% CI 1.12-1.29 respectively). Perceiving that normal process was not being followed was also associated with increased anxiety (RR: 1.18, 95% CI 1.10-1.26) and depression (RR: 1.15, 95% CI 1.08-1.23). Conversely feeling the documentary record was fair and accurate was related to less depression and anxiety (RR depression: 0.80, 95% CI 0.75-0.86; RR anxiety: 0.81, 95% CI 0.75-0.87).

Behavioural issues: Feeling bullied, victimised as a whistle-blower, and perceiving colleagues or management were taking advantage of the situation were associated with higher rates of depression and anxiety (RRs 1.15-1.28 for depression; and 1.16-1.30 for anxiety).

Worrying about the consequences of the complaint: The more doctors were worried about the consequences of the complaint, the higher the reported depression and anxiety (RRs: 1.38-1.53 for depression and 1.33-1.52 for anxiety).

Defensive practice

The relative risks for hedging and avoidance are presented in table 4 and figure 2. There were clear differences in results for hedging and avoidance.

Actual and perceived support

Hedging was greatest when doctors spoke to family or friends (RR: 1.28, 95% CI 1.17-1.41), spoke to colleagues (RR: 1.23, 95% CI 1.09-1.40), and when they accessed help from medical professional support organizations (RR: 1.22, 95% CI 1.15-1.30). No clear relationships were found between perceived support and hedging. Generally, process related issues were not strongly associated with hedging although a protracted timescale for a complaints process was a factor (RR: 1.05, 95% CI 1.03-1.07)

Avoidance related positively to most aspects of actual support (RRs: 1.01-1.25), but was lower when doctors perceived they were well supported by their management (RR: 0.91, 95% CI 0.89-0.93) or colleagues (RR: 0.90, 95% CI 0.89-0.92).

Process related issues and worrying about the consequences of the complaint

Whilst process related issues were not strongly related to hedging, avoidance behaviour (e.g. abandoning procedures early) was more common when negative process or behavioural

issues were reported (RR: 1.07-1.11). Conversely positive process issues (e.g. being well-informed about representation) were related to lower rates of avoidance.

Worrying about the consequences of the complaint was related to higher rates of hedging and avoidance (RRs: 1.10-1.14 for hedging; and 1.14-1.15 for avoidance).

Interactions with type of complaint and recent/past complaint

We have no evidence that relationships with the outcome variables depend on type or timing of complaint based on the dependent false discovery rate procedure. Details of these results are given in supplementary file S2.

Discussion

We have shown that there are a number of factors relating to complaints processes and how they are managed that are associated with the wellbeing of doctors involved as well as the likelihood of them practicing defensive medicine. Our data suggest that how doctors respond to complaints is associated with their perception of the fairness of the process used to investigate them and the behaviour of colleagues involved. The relative risk of anxiety and depression was increased when doctors reported the timescale of a complaint was protracted, processes were not followed or used inappropriately and managers or colleagues used complaints processes to their advantage. Importantly, psychological morbidity increased when complaints were associated with a dysfunctional team, whistleblowing and bullying. Conversely, evidence of good process such as being kept well-informed and accurate minute taking was associated with improved psychological welfare and less defensive practice. Feeling supported by colleagues was associated with the greatest positive impact.

A strength of the study is that to our knowledge, this is the largest study relating to this subject in the UK with responses from over 6000 doctors. A further important factor is that we guaranteed that all responses would be anonymous and untraceable, which we think is vital when asking doctors for their opinions on issues that involve complaints processes and in particular their regulator. We believe it is important that we have used validated instruments to assess levels of anxiety and depression. The main limitation of the study is the overall response rate of 11.4%, and so we must be cautious about the possibility of ascertainment bias. However it should also be remembered that doctors who have been most traumatised may avoid taking part in the survey, whilst doctors who have been struck of the register, changed profession or committed suicide would not have completed the

survey. A further consideration when interpreting the data, are that levels of support were self-reported by the doctors in the study. The study specifically relates to doctors and complaints processes in the UK, so our findings may not be generalizable in terms of other health care settings

The results suggest there may be an association between speaking to family, friends and colleagues and accessing support from a professional organization and increased hedging and avoidance. It seems more likely that these actions reflect a tendency to seek advice in cases where the impact is greatest. A similar pattern is seen for depression and anxiety. The clear exception is “speaking with colleagues”. When doctors reported that they spoke to colleagues, they were significantly less likely to suffer from anxiety and depression, although it must be acknowledged that it is possible that doctors who are more anxious inherently find it more difficult to speak to colleagues. However in the event of a serious event, a doctor may be suspended from practice and denied the opportunity to access colleagues. Our data suggest this practice may damage the mental health of doctors and should be avoided. Whilst removing a doctor from clinical contact to protect patients may be necessary, it is unreasonable to stop them asking colleagues for support. Indeed it might be better if this was encouraged. It is notable that when doctors perceived they had the support of both colleagues and management, this was associated with less avoidance and psychological morbidity.

In 2012 McGivern, et al[17] described how values associated with “transparency” such as openness, independent review and accountability, though generally assumed to be beneficial, may have unintended consequences. These authors also examined reactivity mechanisms using interviews with medical staff and concluded that clinicians make sense of regulation through the experiences of their peers and stated “this heightens their anxiety

about regulators misunderstanding the complexity of their practice and looking to find malpractice in an inquisition-like climate of presumed guilt."[17] We have previously described how approximately 80% of doctors report hedging (e.g. overprescribing, over-referral) and 40% report avoidance (abandoning procedures early, avoiding difficult patients or procedures). These behaviours may have a serious impact on patient care. Our data suggest there is an association between how investigations are carried out, the support given to doctors whilst being subject to investigation, and both defensive practice and psychological morbidity. An example of this is the time taken to carry out a complaint investigation. Seventy-eight per cent of respondents indicated that the timescale involved in their complaint was protracted; whilst figures 1 and 2 show that a protracted timescale is associated with increased avoidance as well as anxiety and depression. More rigorous oversight of regulators and those tasked to investigate complaints locally with fixed timescales permitted for investigation and resolution of a complaints process would seem deliverable. It would also seem a straightforward requirement that investigative bodies follow normal processes, and documentation is fair. A summary box showing factors associated with positive and negative impact on doctors during complaints investigation is shown in supplementary file S3.

A further important factor appears to be the behaviour both of colleagues and those carrying out an investigation. Feeling undermined by management, feeling bullied or victimized, being involved in a dysfunctional team, inappropriate or vexatious use of clinical risk processes and feeling colleagues were taking advantage of the situation were associated with more depression, anxiety and avoidance. Bullying and undermining are unfortunately relatively common within the National Health Service in the UK[18]. It should be possible to rectify these issues by ensuring those carrying out investigations are knowledgeable and

follow clear, transparent processes. More widely, these issues require cultural change to be supported by national bodies. An example of this is the Royal College of Obstetricians and Gynaecologists undermining toolkit[19].

A recent review of doctors who committed suicide whilst under investigation by the GMC concluded that that the GMC has a demonstrable duty of care to those it investigates[20]. The authors cited poor communication, lack of support and unacceptable delays as being factors that increased physician stress. These themes are not dissimilar to the procedural issues we found to be associated with increased psychological morbidity. Our data is derived from all complaints processes and not just referrals to the GMC, so this is a much wider problem than the almost 10,000 doctors referred to the regulator in the UK[21,22]. Our findings were similar irrespective of the type of complaint. It would seem perceived and actual support, the use of appropriate process and the behavior of colleagues is important irrespective of the type of investigation, and that all these may all have a significant impact on the wellbeing of doctors. Even though more support may be in place for serious complaints such as to the GMC, a doctor's perception may be that that support is inadequate in relation to the severity of the process being faced. The relative lack of assistance for low-level complaints may lead to similar perceptions of lack of support.

It is likely that complaints may lead to come positive changes in practice for some physicians, such as improved record keeping. However it is noteworthy that in our previous qualitative report on this database only 6% of doctors described complaint investigations as a positive experience[2]. However overwhelmingly the experience appears to be negative, and procedures that cause avoidance and hedging will be harmful to patients and incur significant costs. In the United States a recent call to action in the American Journal of Obstetrics and Gynecology highlighted the dangers of burnout[23]. The National Academy of

Medicine has also recognised there is an urgent need to address the issue of physician wellbeing[24]. As part of these initiatives, rectifying a culture for investigating complaints that damages doctors and potentially harms patients because of defensive practice should be a priority.

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Contributors: TB conceived of the original idea for the study, interpreted results, drafted the paper and is overall guarantor. MJ designed the questionnaire, obtained ethical approval, contributed to the preparation of the data set, interpreted results and contributed to drafts of the paper. BDC, LW and BVC carried out the statistical analysis and contributed to interpretation of results and drafts of the papers. MP contributed to the study design, interpretation of results and commented on drafts of the paper. DT and CVA contributed to interpretation of results and commented on drafts of the paper. All authors approved the final version of the manuscript.

Transparency: TB, BVC, MJ and DT are the guarantors, and affirm that that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Contribution, v) the inclusion of electronic links from the Contribution to third party material where-ever it may be located; and, vi) licence any third party to do any or all of the above."

Competing interests: MP is head of the BMA doctors for doctors unit and so receives payment from the BMA. All other authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

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Tables and Figures

Table 1. Demographic information for the study population compared to the total BMA membership consented for research

	Total BMA membership consented for research (%)	Study Population N (%)
Age:	–	–
- up to 25	17.8%	15 (0.2%)
- 26 to 29	9.0%	164 (2.7%)
- 30 to 34	9.6%	398 (6.5%)
- 35 to 39	10.3%	643 (10.5%)
- 40 to 44	10.3%	837 (13.7%)
- 45 to 49	10.8%	1105 (18.1%)
- 50 to 54	10.3%	1262 (20.7%)
- 55 to 59	8.1%	1013 (16.6%)
- 60 to 64	5.0%	429 (7%)
- 65 to 69	3.0%	178 (2.9%)
- over 69	5.9%	63 (1%)
Gender:	46.3% Female	2800 (46.5%) Female
Place of qualification:	–	–
- UK	80.1%	5077 (82.6%)
- India	8.2%	331 (5.4%)
- Pakistan	2.2%	55 (0.9%)
- Ireland	0.9%	90 (1.5%)
- Nigeria	1.1%	64 (1%)
- Germany	0.7%	79 (1.3%)
- South Africa	0.7%	58 (0.9%)
- Other	6.2%	390 (6.3%)

Table 1. Demographic information (continued)

	Total BMA membership consented for research (%)	Study Population N (%)
Ethnicity:	–	–
- White British	67.6%	4825 (80.5%)
- Asian or Asian British	23.3%	849 (14.2%)
- Black or Black British	3.5%	122 (2%)
- Chinese or Chinese British	2.9%	69 (1.2%)
- Mixed	2.7%	127 (2.1%)
Grade:	–	–
- Academics	2.1%	66 (1.1%)
- Consultants	27.2%	2301 (37.5%)
- General practice	26.0%	2643 (43%)
- Junior Doctors	26.4%	568 (9.2%)
- SASC	5.3%	313 (5.1%)
- Retired	8.6%	54 (0.9%)
- Other or no answer	4.4%	199 (3.2%)
Specialty[1]:	–	–
- Accident and emergency	/	137 (2.3%)
- Anesthetics	/	341 (5.7%)
- General Medicine	/	690 (11.4%)
- General Practice	/	2845 (47.2%)
- Obstetrics and gynecology	/	62 (1%)
- Oncology	/	111 (1.8%)
- Other	/	271 (4.5%)
- Pediatrics	/	66 (1.1%)
- Pathology	/	495 (8.2%)
- Psychiatry	/	106 (1.8%)
- Radiology	/	604 (10%)

[1] No data was available on the distribution of specialty in the BMA population.

Table 2. The number and percentage of the type of complaint reported in the study.

Type of Complaint investigation*	n (%)
General Medical Council (GMC)	873 (14.2%)
Serious Untoward Incident (SUI)	732 (11.9%)
Formal	3096 (50.4%)
Informal	1284 (20.9%)
Missing	159 (2.6%)
Total	6144

*Doctors were asked to fill in the questionnaire based on the complaint/investigation that had most impact on them.

Table 3. Descriptive information for the items in the questionnaire used in the analysis

Actual Support	Missing	No	Yes				
Spoke to family/friends about it	660	786 (14%)	4698 (86%)	–	–	–	–
Spoke to colleagues about it	625	406 (7%)	5113 (93%)	–	–	–	–
Represented yourself	1014	3218 (63%)	1912 (37%)	–	–	–	–
Accessed support from medical professional support organisation	801	2177 (41%)	3166 (59%)	–	–	–	–
Engaged an independent solicitor	1016	4702 (92%)	426 (8%)	–	–	–	–
Accessed support from BMA employment advice service	950	4564 (88%)	630 (12%)	–	–	–	–
Accessed support from BMA	983	4764 (92%)	397 (8%)	–	–	–	–

counselling/other support organisation

Perceived support	Missing	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Not applicable
I felt supported by management	819	1252 (24%)	521 (10%)	952 (18%)	952 (18%)	716 (13%)	932 (18%)
I felt supported by my colleagues	782	489 (9%)	393 (7%)	787 (15%)	1537 (29%)	1734 (32%)	422 (8%)
I felt supported by my medical professional organisation	890	307 (6%)	260 (5%)	946 (18%)	602 (11%)	588 (11%)	2551 (49%)
I felt supported by my defence organisation	826	214 (4%)	221 (4%)	659 (12%)	1077 (20%)	1547 (29%)	1600 (30%)

BMA: British Medical Association

Table 3. Descriptive information for the items in the questionnaire used in the analysis (continued)

Process related issues	Missing	Not at all	A little	To some extent	Quite a lot	Definitely
Normal process was not followed	1116	2164 (43%)	600 (12%)	1014 (20%)	525 (10%)	725 (14%)
Documentary record was fair and accurate	1703	749 (17%)	545 (12%)	1116 (25%)	1124 (25%)	907 (20%)
Timescale was needlessly protracted	1316	1066 (22%)	737 (15%)	1006 (21%)	627 (13%)	1392 (29%)
Well informed of when and if I could bring representation	1820	1187 (27%)	601 (14%)	1059 (25%)	827 (19%)	650 (15%)
Inappropriate or vexatious use of hospital clinical risk process	1990	2098 (51%)	470 (11%)	626 (15%)	298 (7%)	662 (16%)
Complaint was due to dysfunctional team	1559	2910 (63%)	323 (7%)	481 (10%)	267 (6%)	604 (13%)
Felt victimised because I had been a whistle-blower	1691	3552 (80%)	184 (4%)	190 (4%)	148 (3%)	379 (9%)
Clinical issues raised against me after the initial complaint	1612	3571 (79%)	221 (5%)	270 (6%)	153 (3%)	317 (7%)
I felt bullied during the investigation	1517	2842 (61%)	372 (8%)	502 (11%)	268 (6%)	643 (14%)
Managers used complaints to undermine my position	1603	3117 (69%)	307 (7%)	333 (7%)	207 (5%)	577 (13%)
Colleagues used process to gain advantage financially or professionally	1561	3495 (76%)	233 (5%)	267 (6%)	149 (3%)	439 (10%)

Table 3. Descriptive information for the items in the questionnaire used in the analysis (continued)

Worries about the complaint	Missing	Not at all	A little	To some extent	Quite a lot	A lot
I worried about loss of livelihood	953	1889 (36%)	605 (12%)	1034 (20%)	380 (7%)	1283 (25%)
I worried about public humiliation	951	1532 (30%)	593 (11%)	1164 (22%)	606 (12%)	1298 (25%)
I worried about professional humiliation	923	1069 (20%)	562 (11%)	1229 (24%)	738 (14%)	1623 (31%)
I worried about having aspects of clinical practice restricted	972	2296 (44%)	720 (14%)	810 (16%)	446 (9%)	900 (17%)
I worried about family problems	984	2738 (53%)	569 (11%)	704 (14%)	398 (8%)	751 (15%)
I worried about having a marked record in the future	937	1105 (21%)	524 (10%)	1098 (21%)	746 (14%)	1734 (33%)
I worried about financial costs	985	2227 (43%)	701 (14%)	894 (17%)	438 (8%)	899 (18%)

Table 4. Relative risks for anxiety, depression, hedging and avoidance behaviour in relation to perceived and actual support, colleagues' behavior as well as process-related issues

	Relative Risks (95% CI)			
Item	Anxiety	Depression	Hedging	Avoidance
Actual support:	–	–	–	–
Spoke to family/friends	1.58 (1.11-2.26)	1.46 (1.06-2.02)	1.28 (1.17-1.41)	1.15 (1.05-1.27)
Spoke to colleagues	0.69 (0.51-0.94)	0.64 (0.48-0.84)	1.23 (1.09-1.40)	1.01 (0.90-1.13)
Represented yourself	1.19 (0.96-1.47)	1.29 (1.06-1.57)	0.99 (0.93-1.05)	1.07 (1.01-1.15)
Medical professional support	1.15 (0.93-1.42)	1.31 (1.07-1.60)	1.22 (1.15-1.30)	1.19 (1.12-1.27)
Independent solicitor	1.70 (1.29-2.23)	1.85 (1.45-2.36)	0.98 (0.89-1.09)	1.19 (1.08-1.30)
BMA employment advice service	1.71 (1.35-2.17)	2.06 (1.68-2.52)	0.81 (0.74-0.90)	1.24 (1.14-1.34)
BMA counselling	1.74 (1.33-2.29)	1.91 (1.50-2.44)	0.96 (0.86-1.07)	1.25 (1.14-1.38)
Perceived support from:	–	–	–	–
Management	0.80 (0.74-0.87)	0.77 (0.71-0.83)	0.98 (0.96-1.00)	0.91 (0.89-0.93)
Colleagues	0.78 (0.73-0.84)	0.77 (0.72-0.83)	0.96 (0.94-0.98)	0.90 (0.89-0.92)
Medical professional support	0.87 (0.79-0.96)	0.84 (0.77-0.93)	0.98 (0.95-1.01)	0.98 (0.95-1.01)
Defence organisation	0.87 (0.79-0.95)	0.84 (0.77-0.91)	1.03 (1.00-1.06)	0.96 (0.93-0.99)
Process related issues*:	–	–	–	–
Normal process not followed	1.18 (1.10-1.26)	1.15 (1.08-1.23)	1.01 (0.99-1.03)	1.07 (1.05-1.09)
Documentary record was fair and accurate	0.81 (0.75-0.87)	0.80 (0.75-0.86)	0.98 (0.96-1.00)	0.94 (0.92-0.96)
Time scale was needlessly protracted	1.16 (1.08-1.26)	1.20 (1.12-1.29)	1.05 (1.03-1.07)	1.10 (1.07-1.12)
Informed of rights regarding representation	0.94 (0.87-1.02)	0.96 (0.89-1.03)	0.97 (0.95-0.99)	0.96 (0.94-0.98)
Inappropriate or vexatious use of risk process	1.17 (1.10-1.25)	1.18 (1.11-1.26)	1.02 (1.00-1.04)	1.10 (1.08-1.12)
Complaint due to dysfunctional team relationships	1.19 (1.12-1.26)	1.19 (1.12-1.25)	0.99 (0.97-1.01)	1.08 (1.06-1.10)
Felt victimised as a whistleblower	1.22 (1.15-1.30)	1.23 (1.17-1.30)	0.99 (0.97-1.01)	1.09 (1.07-1.11)
Clinical issues raised against me after the initial complaint	1.20 (1.13-1.28)	1.22 (1.15-1.29)	1.04 (1.01-1.06)	1.11 (1.08-1.13)
Felt bullied during the investigation	1.30 (1.22-1.38)	1.28 (1.22-1.35)	1.03 (1.01-1.05)	1.11 (1.09-1.13)
Managers used complaints processes to undermine my position	1.25 (1.18-1.33)	1.27 (1.20-1.34)	1.01 (0.99-1.03)	1.11 (1.09-1.13)
Colleagues used process to take advantage financially or professionally	1.22 (1.15-1.30)	1.22 (1.16-1.29)	1.02 (1.00-1.04)	1.11 (1.09-1.14)

* Items have been paraphrased from the original questionnaire. The full questionnaire can be found in file S1.

Table 4. Relative risks for anxiety, depression, hedging and avoidance behaviour in relation to perceived and actual support, colleagues' behavior as well as process-related issues (continued)

	Relative Risks (95% CI)			
Item	Anxiety	Depression	Hedging	Avoidance
Worrying about the complaint:	–	–	–	–
Loss of livelihood	1.40 (1.30-1.50)	1.43 (1.34-1.53)	1.11 (1.09-1.13)	1.14 (1.12-1.16)
Public humiliation	1.43 (1.33-1.54)	1.38 (1.29-1.48)	1.13 (1.12-1.15)	1.15 (1.12-1.17)
Professional humiliation	1.52 (1.38-1.66)	1.53 (1.40-1.66)	1.14 (1.12-1.16)	1.15 (1.13-1.18)
Aspects of clinical practice restricted	1.33 (1.25-1.42)	1.39 (1.31-1.47)	1.10 (1.08-1.12)	1.14 (1.11-1.16)
Family problems	1.44 (1.35-1.53)	1.46 (1.38-1.55)	1.11 (1.09-1.13)	1.14 (1.12-1.16)
Marked record in the future	1.49 (1.36-1.64)	1.53 (1.40-1.67)	1.13 (1.11-1.16)	1.14 (1.11-1.16)
Financial costs	1.38 (1.29-1.47)	1.43 (1.34-1.52)	1.11 (1.09-1.13)	1.15 (1.13-1.17)

Legends for figures

Fig1: The relative risks (with 95% confidence intervals) for anxiety and depression in relation to actual and perceived support as well as process related issues

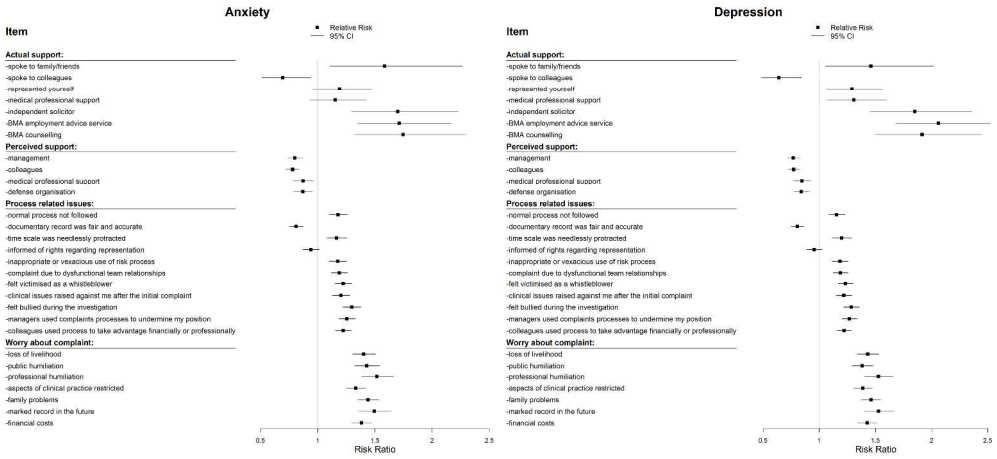
Fig 2. The relative risks (with 95% confidence intervals) for hedging and avoidance in relation to actual and perceived support as well as process related issues

Supplementary material

Supplementary file 1: The full survey that was sent to physicians

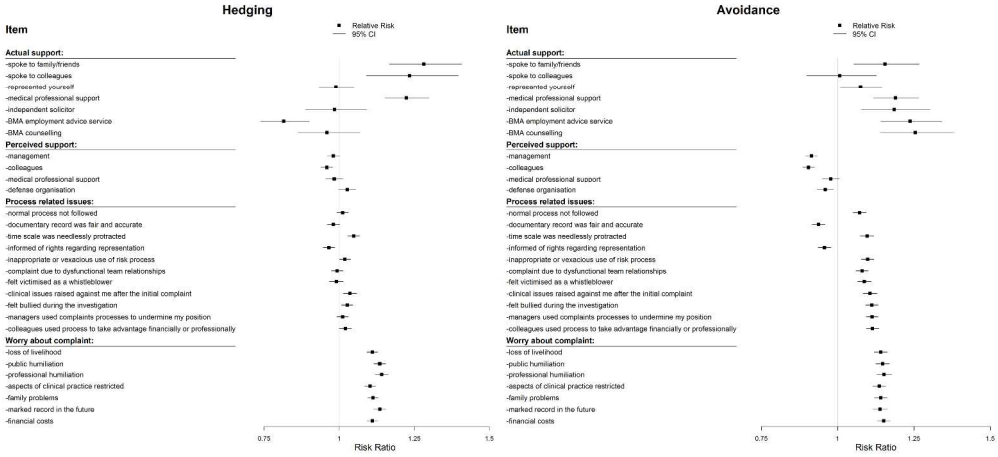
Supplementary file 2: Further statistical information: dichotomization, relationships with the type or timing of the complaint, and sensitivity analysis

Supplementary file 3: Summary box to illustrate factors associated with a positive or negative impact on doctor's wellbeing and clinical practice when there is an investigation into a complaint.



The relative risks (with 95% confidence intervals) for anxiety and depression in relation to actual and perceived support as well as process related issues

592x279mm (300 x 300 DPI)



The relative risks (with 95% confidence intervals) for hedging and avoidance in relation to actual and perceived support as well as process related issues

592x279mm (300 x 300 DPI)

The IMPACT study

1. Consent to participate in the study

This is an electronic form of consent for the study. By ticking the boxes below, you agree to take part in the study.

All information that you provide is ANONYMOUS and CONFIDENTIAL and held in strictest confidence. You will not be asked to provide any information that can be used to identify you nor can you be identified by us by filling in any part of this survey.

1. I consent to the use of my survey results to better understand the impact of complaints and investigations on doctors and their practice.

- ◯ Yes
- ◯ No

2.

3. Demographics

This section will ask you some general questions about you and your background.

2. How old are you?

3. What is your gender?

- ◯ Female
- ◯ Male

4. What is your Marital Status?

5. What is your Ethnic Origin?

6. In which year did you qualify?

7. If you qualified outside the UK, in which year did you come to the UK to practice medicine?

8. If relevant, in which year did you complete your specialist training?

The IMPACT study

9. In which country did you complete your medical training?

10. Where is your principal workplace? (where you spend the majority of your working time)

- [ ] GP surgery
- [ ] Elsewhere in primary care
- [ ] District general hospital
- [ ] University teaching hospital
- [ ] Academic institution
- [ ] Private practice clinic/hospital

Other (please specify)

11. What is your specialty?

Other (please specify)

12. Is your current post

- [ ] Part time
- [ ] Part time - Locum
- [ ] Full time
- [ ] Full time - Locum
- [ ] Self-employed contractor

13. What is your grade?

Other (please specify)

14. How long have you worked in your current post?

4. Informal and formal complaints

The IMPACT study

15. Have you ever been subjected to an informal complaint, formal complaint or serious untoward incident?

- ☐ No
- ☐ Yes, and it is either ongoing or was resolved within the past 6 months
- ☐ Yes, and it was resolved more than 6 months ago

5. About your complaint

16. Please enter how many of each of the following you have had

	0	1	2	3	4	5	6	7	8	9	10+
Informal complaints	○	○	○	○	○	○	○	○	○	○	○
Formal complaints	○	○	○	○	○	○	○	○	○	○	○
Serious untoward incidents	○	○	○	○	○	○	○	○	○	○	○
Referrals to the GMC	○	○	○	○	○	○	○	○	○	○	○

17. If applicable, which complaint or incident had the most impact on you?

Optional comments

18. What was the reason given to you for your complaint / referral to the GMC (if more than one, please select the most serious allegation)?

- ☐ Clinical complaint
- ☐ Clinical performance (i.e. concerns raised about your practice generally)
- ☐ Personal conduct (e.g. dishonesty, affairs with patients)
- ☐ Criminal offence (e.g. dangerous driving, fraud)

19. Where did the complaint come from?

	Yes	No
Trust	☐	☐
Medical colleagues	☐	☐
Patient	☐	☐
Management	☐	☐
Media	☐	☐
Patient group	☐	☐
Other health care professional	☐	☐
Anynomous	☐	☐

20. How long ago was your (most recent) complaint / investigation concluded?

The IMPACT study

21. How long (in months) did the investigation take?

If more than one, please select the most serious allegation

If the investigation is ongoing, please enter the length of time it has taken up to this point

22. If you were referred to the GMC for a procedure, how long did that take (in months)?

If it is still ongoing, please state how long it has taken up to this point

23. How stressful did you find the following aspects of the GMC procedure?

	Extremely stressful	2	Somewhat stressful	4	Not at all stressful	N/A
The initial GMC investigation	◯	◯	◯	◯	◯	◯
The decision to hold a Fitness to Practice hearing	◯	◯	◯	◯	◯	◯
The Fitness to Practice hearing itself	◯	◯	◯	◯	◯	◯
The appeal	◯	◯	◯	◯	◯	◯

24. What was the outcome of the complaint / procedure?

- ☐ No fault / exonerated
- ☐ Retraining imposed
- ☐ Disciplinary action
- ☐ Suspended from practice
- ☐ Struck off from the register
- ☐ The process was not clearly concluded

Other (please specify)

25. At any point during the investigation(s), did you

	Yes	No
Take sick leave	◯	◯
Take unpaid leave	◯	◯
Have supervised practice	◯	◯
Have restrictions placed on your practice	◯	◯
Were you suspended	◯	◯
Did your restrictions also include your private practice (if applicable)	◯	◯

26. How long were you off work in total?

The IMPACT study

27. Please estimate the direct financial costs (e.g. travel, legal fees, etc. in GBP) to you as a result of the investigation (if relevant)

28. Please estimate the indirect financial costs (e.g. loss of earnings, in GBP) to you as a result of the investigation (if relevant)

29. At any point of the inquiry, did you do any of the following

	Yes	No
Speak to family / friends about it	◯	◯
Speak to your colleagues about it	◯	◯
Represent yourself	◯	◯
Access support from a medical professional support organisation	◯	◯
Engage an independent solicitor or barrister	◯	◯
Were your case or the complaint published in the media (including social media)	◯	◯
Access support from the BMA employment advice service	◯	◯
Access support from the BMA counselling / other support organisation	◯	◯

The IMPACT study

30. As a consequence of the inquiry, to what extent do you agree/disagree with the following statements

	Strongly Agree	2	Neutral	4	Strongly Disgree	N/A
The potential consequences of the enquiry were clear to me throughout the process	◯	◯	◯	◯	◯	◯
I clearly understood the process	◯	◯	◯	◯	◯	◯
The process was transparent	◯	◯	◯	◯	◯	◯
Going through the process, I felt that I was assumed guilty until proven otherwise	◯	◯	◯	◯	◯	◯
I felt as if I had been scapegoated	◯	◯	◯	◯	◯	◯
I felt I had no control over what was happening to me	◯	◯	◯	◯	◯	◯
I felt alone in the proceedings	◯	◯	◯	◯	◯	◯
My complaint was primarily related to conflicts with colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my management	◯	◯	◯	◯	◯	◯
I felt well supported by my colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my medical professional support organisation	◯	◯	◯	◯	◯	◯
I felt well supported by my defence organisation	◯	◯	◯	◯	◯	◯
I felt that the complaint was fair	◯	◯	◯	◯	◯	◯
I felt that the complaint was reasonably dealt with	◯	◯	◯	◯	◯	◯
I felt that there were unnecessary delays in the process	◯	◯	◯	◯	◯	◯
I felt my complaint was handled competently	◯	◯	◯	◯	◯	◯
I was worried about the complaint escalating further	◯	◯	◯	◯	◯	◯
I felt that the consequences were proportionate	◯	◯	◯	◯	◯	◯
I felt that the nature of the process was overly punitive	◯	◯	◯	◯	◯	◯
I felt that the complaint was vexatious	◯	◯	◯	◯	◯	◯

The IMPACT study

31. To what extent did the following apply in relation to the process of the complaint or procedure you experienced

	Not at all	2	To some extent	4	Definitely
Normal process was not followed	◯	◯	◯	◯	◯
The documentary record such as minutes produced by the investigative body was fair and accurate	◯	◯	◯	◯	◯
The time scale for the investigation was needlessly protracted	◯	◯	◯	◯	◯
I was kept well informed of when or if I could bring representation to meetings	◯	◯	◯	◯	◯
I believe there was inappropriate or vexacious use of the hospital clinical risk process	◯	◯	◯	◯	◯
I felt the complaint arose because of dysfunctional relationships within the clinical team	◯	◯	◯	◯	◯
I felt victimised because I had been a whistleblower for clinical or managerial failures	◯	◯	◯	◯	◯
Clinical issues were found after the initial complaint and used against me	◯	◯	◯	◯	◯
I felt bullied during the investigation	◯	◯	◯	◯	◯
I felt managers used the process to undermine my position	◯	◯	◯	◯	◯
I felt clinical colleagues used the process to gain an advantage either financially or professionally	◯	◯	◯	◯	◯

Other (please specify)

32. During the inquiry, to what extent were you worried about the following outcomes

	A lot	2	To some extent	4	Not at all
Loss of livelihood	◯	◯	◯	◯	◯
Public humiliation	◯	◯	◯	◯	◯
Professional humiliation	◯	◯	◯	◯	◯
Having aspects of your clinical practice restricted	◯	◯	◯	◯	◯
Family problems	◯	◯	◯	◯	◯
Having a marked record in the future	◯	◯	◯	◯	◯
Financial costs	◯	◯	◯	◯	◯

33. Currently, to what extent do you worry about complaints being made against you?

◯ A great deal / nearly all the time

◯ 2

◯ To some extent

◯ 4

◯ Not at all

The IMPACT study

34. To what extent do you agree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree
Complaints are usually due to bad luck	○	○	○	○	○
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	○	○	○	○	○
Complaints are caused by litigatious patients	○	○	○	○	○
Doctors are hounded by the media	○	○	○	○	○
Doctors who receive complaints against them are generally unsuitable to practice medicine	○	○	○	○	○
I feel the need to please my colleagues to avoid complaints against me	○	○	○	○	○
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	○	○	○	○	○
Receiving a complaint would seriously affect my future career prospects	○	○	○	○	○
I have considered changing my career because of the high risk of receiving a complaint in my speciality	○	○	○	○	○

6. About complaints in general

35. In general, to what extent do you worry about complaints being made against you?

○ A great deal / nearly all the time

○ 2

○ To some extent

○ 4

○ Not at all

The IMPACT study

36. To what extent do you agree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree
Complaints are usually due to bad luck	○	○	○	○	○
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	○	○	○	○	○
Complaints are caused by litigatious patients	○	○	○	○	○
Doctors are hounded by the media	○	○	○	○	○
Doctors who receive complaints against them are generally unsuitable to practice medicine	○	○	○	○	○
I feel the need to please my colleagues to avoid complaints against me	○	○	○	○	○
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	○	○	○	○	○
Receiving a complaint would seriously affect my future career prospects	○	○	○	○	○
I have considered changing my career because of the high risk of receiving a complaint in my speciality	○	○	○	○	○

37. To what extent do you agree/disagree with the following statements?

	Strongly Agree	2	Neutral	4	Strongly Disgree
Complaints are primarily related to conflicts with colleagues	○	○	○	○	○
If I had a complaint made against me, I am confident that my management would support me	○	○	○	○	○
If I had a complaint made against me, I am confident that my colleagues would support me	○	○	○	○	○
If I had a complaint made against me, I am confident that my medical professional support organisation would support me	○	○	○	○	○
If I had a complaint made against me, I am confident that my defence organisation would support me	○	○	○	○	○
Overall, I believe that the complaints process is fair	○	○	○	○	○
Overall, I believe that complaints are reasonably dealt with	○	○	○	○	○
Overall, I believe that the complaints process is handled competently	○	○	○	○	○
Overall, I believe that the consequences are proportionate in the complaints process	○	○	○	○	○
Overall, I believe that the complaints process is vexatious	○	○	○	○	○
Overall, I believe that the complaints process is overly punitive	○	○	○	○	○

7. Medical History

The IMPACT study

38. In the past 12 months, have you suffered from any of the following health conditions or stressors (please tick all that apply)?

- ☐ Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)
- ☐ Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)
- ☐ Depression
- ☐ Anxiety
- ☐ Anger & irritability
- ☐ Other mental health problems
- ☐ Suicidal thoughts
- ☐ Sleep problems / insomnia
- ☐ Marital / relationship problems
- ☐ Frequent headaches
- ☐ Minor colds
- ☐ Recurring respiratory infections

If yes - please specify

39. In the past 12 months, have you experienced any additional life stressors (e.g. bereavement, accident, etc.)

- ○ Yes
- ○ No

If yes please specify

40. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ No

8. Possible legal consequences and professional practice

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

The IMPACT study

41. How often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals than warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters about a patient than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

42. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

The IMPACT study

43. As a result of what you know about the complaints process, have you

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that are considered high risk of complaints	◯	◯
Changed your specialty	◯	◯
Become less likely to take on high-risk cases	◯	◯
Become more likely to abandon a procedure at an early stage	◯	◯
Felt that you have learnt from others' experience and improved your performance as a doctor	◯	◯

Other (please specify)

44. Indicate the extent you feel that any of the following changes would improve the complaints process?

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous internal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

9. Medical History (ii)

The IMPACT study

45. In the past 12 months, have you suffered from any of the following health conditions or stressors (please tick all that applies):

- ☐ Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)
- ☐ Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)
- ☐ Depression
- ☐ Anxiety
- ☐ Anger & irritability
- ☐ Other mental health problems
- ☐ Suicidal thoughts
- ☐ Sleep problems / insomnia
- ☐ Marital / relationship problems
- ☐ Frequent headaches
- ☐ Minor colds
- ☐ Recurring respiratory infections

If yes - please specify

46. In the past 12 months, have you experienced any additional life stressors (e.g. bereavement, accident, etc.)

- ○ Yes
- ○ No

If yes, please specify

47. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ No

10. Legal consequences and professional practice (ii)

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

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48. How often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals even when this is not warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

49. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Previous experience of complaints about you	◯	◯
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

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50. As a result of your experience do any of the following apply?

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that led to the complaint	◯	◯
Changed your specialty	◯	◯
Less likely to take on high-risk cases	◯	◯
More likely to abandon a procedure at an early stage	◯	◯
Moved into a non-clinical role	◯	◯
You have become less committed and work strictly to your job description	◯	◯
You have learnt from the experience and improved your performance as a doctor	◯	◯
Left medicine and started a new career	◯	◯
The complaint or the way you were treated was related to discrimination	◯	◯
Retired early	◯	◯
Reduced your hours in the NHS to minimise your time there	◯	◯
Stopped working for the NHS and decided to work only in private practice or practice medicine elsewhere	◯	◯

Other (please specify)

51. Indicate the extent you feel that any of the following changes would improve the process

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous interrnal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and with possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

11. About your complaint (iii)

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52. Please enter how many of each of the following you have had

	0	1	2	3	4	5	6	7	8	9	10+
Informal complaints	○	○	○	○	○	○	○	○	○	○	○
Formal complaints	○	○	○	○	○	○	○	○	○	○	○
Serious untoward incidents	○	○	○	○	○	○	○	○	○	○	○
Referrals to the GMC	○	○	○	○	○	○	○	○	○	○	○

53. If applicable, which complaint or incident had the most impact on you?

Optional comments

54. What was the reason for your complaint / referral to the GMC (if more than one, please select the most serious allegation)?

- ☐ Clinical complaint
- ☐ Clinical performance (i.e. concerns raised about your practice generally)
- ☐ Personal conduct (e.g. dishonesty, affairs with patients)
- ☐ Criminal offence (e.g. dangerous driving, fraud)

55. Where did the complaint come from?

	Yes	No
Trust	☐	☐
Medical colleagues	☐	☐
Patient	☐	☐
Management	☐	☐
Media	☐	☐
Patient group	☐	☐
Other health care professional	☐	☐
Anonymous	☐	☐

56. How long ago was your (most recent) complaint / investigation concluded?

57. How long (in months) did the investigation take (if more than one, please select the most serious allegation)?

58. If you were referred to the GMC for a process, how long did that take (in months)?

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59. If applicable, how stressful did you find the following aspects of the GMC process?

	Extremely stressful	2	Somewhat stressful	4	Not at all stressful	N/A
The initial GMC investigation	◯	◯	◯	◯	◯	◯
The decision to hold a Fitness to Practice hearing	◯	◯	◯	◯	◯	◯
The Fitness to Practice hearing itself	◯	◯	◯	◯	◯	◯
The appeal	◯	◯	◯	◯	◯	◯

60. What was the outcome of the complaint / process?

- ☐ No fault / exonerated
- ☐ Retraining imposed
- ☐ Disciplinary action
- ☐ Suspended from practice
- ☐ Struck off from the register
- ☐ The process was not clearly concluded

Other (please specify)

61. At any point during the investigation(s), did you

	Yes	No
Take sick leave	◯	◯
Take unpaid leave	◯	◯
Have supervised practice	◯	◯
Have restrictions placed on your practice	◯	◯
Were you suspended	◯	◯
Did your restrictions also include your private practice (if applicable)	◯	◯

62. How long were you off work in total?

63. Please estimate the direct financial costs (e.g. travel, legal fees, etc. in GBP) to you as a result of the investigation (if relevant)

64. Please estimate the indirect financial costs (e.g. loss of earnings in GBP) to you as a result of the investigation (if relevant)

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65. At any point of the inquiry, did you

	Yes	No
Speak to family / friends about it	◯	◯
Speak to your colleagues about it	◯	◯
Represent yourself	◯	◯
Access support from a medical professional support organisation	◯	◯
Engage an independent solicitor or barrister	◯	◯
Were your case or the complaint published in the media (including social media)	◯	◯
Access support from the BMA employment advice service	◯	◯
Access support from the BMA counselling / other support organisation	◯	◯

66. As a consequence of the inquiry, to what extent do you agree/disagree with the following statements?

	Strongly agree	2	Neutral	4	Strongly disagree	N/A
The potential consequences of the enquiry were clear to me throughout the process	◯	◯	◯	◯	◯	◯
I clearly understood the process	◯	◯	◯	◯	◯	◯
The process was transparent	◯	◯	◯	◯	◯	◯
Going through the process, I felt that I was assumed guilty until proven otherwise	◯	◯	◯	◯	◯	◯
I felt as if I had been scapegoated	◯	◯	◯	◯	◯	◯
I felt I had no control over what was happening to me	◯	◯	◯	◯	◯	◯
I felt alone in the proceedings	◯	◯	◯	◯	◯	◯
My complaint was primarily related to conflicts with colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my management	◯	◯	◯	◯	◯	◯
I felt well supported by my colleagues	◯	◯	◯	◯	◯	◯
I felt well supported by my medical professional support organisation	◯	◯	◯	◯	◯	◯
I felt well supported by my defence organisation	◯	◯	◯	◯	◯	◯
I felt that the complaint was fair	◯	◯	◯	◯	◯	◯
I felt that the complaint was reasonably dealt with	◯	◯	◯	◯	◯	◯
I felt that there were unnecessary delays in the process	◯	◯	◯	◯	◯	◯
I felt my complaint was handled competently	◯	◯	◯	◯	◯	◯
I was worried about the complaint escalating further	◯	◯	◯	◯	◯	◯
I felt that the consequences were proportionate	◯	◯	◯	◯	◯	◯
I felt that the nature of the process was overly punitive	◯	◯	◯	◯	◯	◯
I felt that the complaint was vexatious	◯	◯	◯	◯	◯	◯

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67. To what extent did the following apply in relation to the process of the complaint or procedure you experienced?

	Not at all	2	To some extent	4	Definitely
Normal process was not followed	◯	◯	◯	◯	◯
The documentary record such as minutes produced by the investigative body was fair and accurate	◯	◯	◯	◯	◯
The time scale for the investigation was needlessly protracted	◯	◯	◯	◯	◯
I was kept well informed of when or if I could bring representation to meetings	◯	◯	◯	◯	◯
I believe there was inappropriate or vexacious use of the hospital clinical risk process	◯	◯	◯	◯	◯
I felt the complaint arose because of dysfunctional relationships within the clinical team	◯	◯	◯	◯	◯
I felt victimised because I had been a whistleblower for clinical or managerial failures	◯	◯	◯	◯	◯
Clinical issues were found after the initial complaint and used against me	◯	◯	◯	◯	◯
I felt bullied during the investigation	◯	◯	◯	◯	◯
I felt managers used the process to undermine my position	◯	◯	◯	◯	◯
I felt clinical colleagues used the process to gain an advantage either financially or professionally	◯	◯	◯	◯	◯

Other (please specify)

68. During the inquiry, to what extent were you worried about the following outcomes?

	A lot	2	To some extent	4	Not at all
Loss of livelihood	◯	◯	◯	◯	◯
Public humiliation	◯	◯	◯	◯	◯
Professional humiliation	◯	◯	◯	◯	◯
Having aspects of your clinical practice restricted	◯	◯	◯	◯	◯
Family problems	◯	◯	◯	◯	◯
Having a marked record in the future	◯	◯	◯	◯	◯
Financial costs	◯	◯	◯	◯	◯

69. Currently, to what extent do you worry about complaints being made against you?

◯ A great deal / nearly all the time

◯ 2

◯ To some extent

◯ 4

◯ Not at all

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70. To what extent do you agree with the following statements?

	Definitely agree	2	Neutral	4	Definitely disagree
Complaints are usually due to bad luck	○	○	○	○	○
A doctor who receives more complaints than other colleagues usually does so because of poor clinical performance	○	○	○	○	○
Complaints are caused by litigatious patients	○	○	○	○	○
Doctors are hounded by the media	○	○	○	○	○
Doctors who receive complaints against them are generally unsuitable to practice medicine	○	○	○	○	○
I feel the need to please my colleagues to avoid complaints against me	○	○	○	○	○
Making a complaint is a good way of getting rid of colleagues that are "inconvenient"	○	○	○	○	○
Receiving a complaint would seriously affect my future career prospects	○	○	○	○	○
I have considered changing my career because of the high risk of receiving a complaint in my speciality	○	○	○	○	○

12. Medical History (iii)

71. When you were facing the investigation, did you experience any of the following?

	Improvement	No change	Onset of	Worsening of
Cardio-vascular problems (e.g. high blood pressure, angina, heart attack)	☐	☐	☐	☐
Gastro-intestinal problems (e.g. gastritis, IBS, ulcers)	☐	☐	☐	☐
Depression	☐	☐	☐	☐
Anxiety	☐	☐	☐	☐
Anger & irritability	☐	☐	☐	☐
Other mental health problems	☐	☐	☐	☐
Suicidal thoughts	☐	☐	☐	☐
Sleep problems / insomnia	☐	☐	☐	☐
Relationship problems	☐	☐	☐	☐
Frequent headaches	☐	☐	☐	☐
Minor colds	☐	☐	☐	☐
Recurring respiratory infections	☐	☐	☐	☐

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72. During the process, did you experience any additional life stressors (e.g. bereavement, accident, etc.)

- ◯ Yes
- ◯ No

If yes please specify

73. Have you ever been aware of, or other people raised concerns, that you are drinking too much alcohol or taking (prescribed or non-prescribed) drugs?

- ☐ Yes, in the past (more than 6 months ago)
- ☐ Yes, currently (in the last 6 months)
- ☐ Yes, during the investigation
- ☐ No

13. Legal consequences and professional practice (iii)

Within the LAST 6 MONTHS, have you ever taken the following actions which you would not have done if you were not worried about possible consequences such as complaints, disciplinary actions by managers, being sued, or publicity in the media?

74. As a result of your experience, how often have you done any of the following?

	Never	2	Sometimes	4	Often
Did you change the way you practice medicine?	◯	◯	◯	◯	◯
Prescribed more medications than medically indicated?	◯	◯	◯	◯	◯
Suggested invasive procedures against professional judgement?	◯	◯	◯	◯	◯
Referred to specialists in unnecessary circumstances?	◯	◯	◯	◯	◯
Conducted more investigations or made more referrals than warranted by the patient's condition?	◯	◯	◯	◯	◯
Admitted patients to hospital when the patient could have been discharged home safely or managed as an outpatient?	◯	◯	◯	◯	◯
Asked for more frequent observations to be carried out on a patient than necessary?	◯	◯	◯	◯	◯
Written in patients' records specific remarks such as "not suicidal" which you would not if you were not worried about legal/media/disciplinary consequences?	◯	◯	◯	◯	◯
Written more letters about a patient than is necessary to communicate about the patient's condition?	◯	◯	◯	◯	◯
Referred patient for a second opinion more than necessary?	◯	◯	◯	◯	◯
Carried out more tests than necessary?	◯	◯	◯	◯	◯
Not accepted "high risk" patients in order to avoid possible complications?	◯	◯	◯	◯	◯
Avoid a particular type of invasive procedure	◯	◯	◯	◯	◯
Stopped doing aspects of your job?	◯	◯	◯	◯	◯
Felt that you are a worse practitioner because of the above actions?	◯	◯	◯	◯	◯

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75. If you have answered "Never" to all the questions above, please omit this question. Which of the following factors are important? (please tick all boxes relevant to you)

	Yes	No
Previous experience of complaints about you	◯	◯
Your colleagues' previous experience of complaints	◯	◯
Previous legal claims involving you	◯	◯
Previous legal claims involving your colleagues	◯	◯
Previous critical incident	◯	◯
Concerns about media interest	◯	◯

Other (please specify)

76. As a result of your experience do any of the following apply?

	Yes	No
Stayed in the specialty but stopped carrying out the area of work that led to the complaint	◯	◯
Changed your specialty	◯	◯
Less likely to take on high-risk cases	◯	◯
More likely to abandon a procedure at an early stage	◯	◯
Moved into a non-clinical role	◯	◯
You have become less committed and work strictly to your job description	◯	◯
You have learnt from the experience and improved your performance as a doctor	◯	◯
Left medicine and started a new career	◯	◯
The complaint or the way you were treated was related to discrimination	◯	◯
Retired early	◯	◯
Reduced your hours in the NHS to minimise your time there	◯	◯
Stopped working for the NHS and decided to work only in private practice or practice medicine elsewhere	◯	◯

Other (please specify)

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77. Indicate the extent you feel that any of the following changes would improve the process

	Not at all	2	To some extent	4	A great deal
To allow the doctor to have more direct input into responses to patient complaints	◯	◯	◯	◯	◯
To be given a clear written protocol for any process at the onset	◯	◯	◯	◯	◯
To have strict adherence to a statutary timeframe for any complaint and investigation process	◯	◯	◯	◯	◯
Brief colleagues about any complaint or investigation to ensure unambiguous internal communications	◯	◯	◯	◯	◯
If a complaint from a clinical or managerial colleague was found to be vexatious then to have the option of having this investigated and with possible disciplinary measures taken	◯	◯	◯	◯	◯
If a complaint from a patient was found to be vexatious then to have the option to take action against that person	◯	◯	◯	◯	◯
To set a limit to the time period when it is permitted to file multiple complaints relating to the same clinical incident or from the same person or persons	◯	◯	◯	◯	◯
If the doctor is exonerated but has suffered financial loss during the process, then to have an avenue to make a claim for recovery of lost earnings or costs	◯	◯	◯	◯	◯
To have complete transparency of any management communication about the subject of a complaint by giving access to this to the doctor's representatives	◯	◯	◯	◯	◯
For all managers to demonstrate a full up to date knowledge of procedure in relation to complaints if they are made responsible for them	◯	◯	◯	◯	◯
The BMA and defence organisations should be more aggressive and less reactive to complaints in general	◯	◯	◯	◯	◯

14. PHQ-9 & GAD-7

78. Over the last 2 WEEKS, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	◯	◯	◯	◯
Feeling down, depressed, or hopeless	◯	◯	◯	◯
Trouble falling or staying asleep, or sleeping too much	◯	◯	◯	◯
Feeling tired or having little energy	◯	◯	◯	◯
Poor appetite or overeating	◯	◯	◯	◯
Feeling bad about yourself — or that you are a failure or have let yourself or your family down	◯	◯	◯	◯
Trouble concentrating on things, such as reading the newspaper or watching television	◯	◯	◯	◯
Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	◯	◯	◯	◯
Thoughts that you would be better off dead or of hurting yourself in some way	◯	◯	◯	◯

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79. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- ◯ Not difficult at all
- ◯ Somewhat difficult
- ◯ Very difficult
- ◯ Extremely difficult

80. Over the last 2 WEEKS, how often have you been bothered by the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge	◯	◯	◯	◯
Not being able to stop or control worrying	◯	◯	◯	◯
Worrying too much about different things	◯	◯	◯	◯
Trouble relaxing	◯	◯	◯	◯
Being so restless that it is hard to sit still	◯	◯	◯	◯
Becoming easily annoyed or irritable	◯	◯	◯	◯
Feeling afraid as if something awful might happen	◯	◯	◯	◯

15. LDI

This scale is intended to estimate your current level of satisfaction with each of the eighteen areas of your life listed below. Please circle one of the numbers (1-7) beside each area. Numbers toward the left end of the seven-unit scale indicate higher levels of dissatisfaction, while numbers toward the right end of the scale indicate higher levels of satisfaction. Try to concentrate on how you currently feel about each area.

81. Please estimate your current level of satisfaction with each of the following areas of your life.

	1 Extremely dissatisfied	2	3	4	5	6 Extremely satisfied
Marriage	◯	◯	◯	◯	◯	◯
Relationship to spouse	◯	◯	◯	◯	◯	◯
Relationship to children	◯	◯	◯	◯	◯	◯
Financial situation	◯	◯	◯	◯	◯	◯
Employment	◯	◯	◯	◯	◯	◯
Recreation/Leisure	◯	◯	◯	◯	◯	◯
Social life	◯	◯	◯	◯	◯	◯
Physical health	◯	◯	◯	◯	◯	◯
Satisfaction with life	◯	◯	◯	◯	◯	◯
Expectations for future	◯	◯	◯	◯	◯	◯

16. Additional information (optional)

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82. (If relevant) Try to summarise as best you can your experience of the complaints process and how it made you feel

83. (if relevant) What were the most stressful aspects of the complaint?

84. What would you improve in the complaints system?

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85. Other comments

17. Thank you for taking part in this study

Supplementary file S2:

Dichotomization, relationships with the type or timing of the complaint, and sensitivity analysis

Dichotomization

Depression was assessed through use of the *Physical Health Questionnaire* (PHQ-9) and respondents with a score greater than or equal to 10 were considered depressed. The *Generalized Anxiety Disorder* scale (GAD-7) assessed anxiety and respondents were considered to be anxious if had a score greater than or equal to 10. Avoidance was dichotomized as never displaying avoidance behavior and displaying at least some avoidance behavior. By dichotomizing avoidance, respondents were equally distributed among the two groups. That is, approximately 50% never displayed avoidance behavior and the other 50% of the respondents displayed at least some avoidance behavior. We therefore decided to use a median split to dichotomize hedging, since there were very few respondents (16.85%) that never displayed hedging behavior. Respondents with a score greater than or equal to 10 were part of the upper 50% with regard to hedging behavior and hence, this score was used to dichotomize hedging. In this manner, the respondents were also equally distributed among the two groups for hedging.

Relationships with the type or timing of the complaint

Similar to the other analyses, relative risks for the outcome were estimated by Poisson regression with robust error variance (Zou, 2014). To assess the effect of type/time of the complaint, a model was fitted with the item and the time/type of complaint as well as the interaction between item and time/type of complaint. Hedging, avoidance, anxiety or depression were used as the outcome. The p-values for the interactions were computed and the dependent false discovery rate procedure (Benjamini and Yekateuli, 2001) was applied, yielding the adjusted p-values depicted in supplementary tables 1-2.

Supplementary table 1. Adjusted p-values of interaction item with type of complaint

Item	Adjusted p-value of interaction item with type of complaint			
	Anxiety	Depression	Hedging	Avoidance
Actual support:				
-spoke to family/friends	1	1	1	1
-spoke to colleagues	1	1	1	1
-represented yourself	1	1	1	1
-medical professional support	1	1	1	1
-independent solicitor	1	1	1	1
-BMA employment advice service	1	1	1	1
-BMA counselling	1	1	1	1
Perceived support:				
-management	1	1	1	1
-colleagues	1	1	1	1
-medical professional support	1	1	1	1
-defense organisation	1	1	1	1
Process related issues:				
-normal process not followed	1	1	1	1
-documentary record was fair and accurate	1	1	1	1
-time scale was needlessly protracted	1	1	1	1
-informed of rights regardng representation	1	1	1	1
-inappropriate or vexacious use of risk process	1	1	1	1
-complaint due to dysfunctional team relationships	1	1	0.425	1
-felt victimised as a whistleblower	1	1	1	1
-clinical issues raised against me after the initial complaint	1	1	1	1
-felt bullied during the investigation	0.793	1	1	1
-managers used complaints processes to undermine my position	1	1	1	1
-colleagues used process to take advantage financially or professionally	1	1	1	1
Worrying about the complaint:				
-loss of livelihood	1	1	1	1
-public humiliation	1	1	1	1
-professional humiliation	1	1	1	1
-aspects of clinical practice restricted	1	1	1	1
-family problems	1	1	1	1
-marked record in the future	1	1	0.337	1
-financial costs	1	1	1	1

Supplementary table 2. Adjusted p-values of interaction item with time of complaint

Item	Adjusted p-value of interaction item with time of complaint: Hedging	Avoidance
Actual support:		
-spoke to family/friends	1	0.325
-spoke to colleagues	1	1
-represented yourself	1	1
-medical professional support	0.261	1
-independent solicitor	0.618	1
-BMA employment advice service	0.261	1
-BMA counselling	0.773	1
Perceived support:		
-management	0.997	1
-colleagues	0.26	1
-medical professional support	1	1
-defense organisation	0.773	1
Process related issues:		
-normal process not followed	0.775	1
-documentary record was fair and accurate	0.997	0.923
-time scale was needlessly protracted	0.073	0.127
-informed of rights regardng representation	1	0.127
-inappropriate or vexacious use of risk process	0.26	1
-complaint due to dysfunctional team relationships	0.073	0.207
-felt victimised as a whistleblower	0.26	0.304
-clinical issues raised against me after the initial complaint	0.637	1
-felt bullied during the investigation	0.455	0.127
-managers used complaints processes to undermine my position	0.997	0.127
-colleagues used process to take advantage financially or professionally	0.26	0.127
Worrying about the complaint:		
-loss of livelihood	0.073	0.244
-public humiliation	0.346	0.943
-professional humiliation	0.311	0.434
-aspects of clinical practice restricted	0.26	0.084
-family problems	0.073	0.693
-marked record in the future	0.26	0.923
-financial costs	0.073	0.207

Imputation

In accordance with the analysis of Bourne et al. (2015), a two-step approach to imputation was used for composite scales (depression, anxiety and hedging). First, the respondent's mean of non-missing items was imputed if at least 80% of the items of the composite scale were nonmissing. Second, multiple imputation at the scale level was performed for the remaining respondents. The missing values for avoidance were imputed by imputing the three items of avoidance separately. Multiple imputation was performed by using the fully conditional specification approach, in which a separate imputation model is specified for every variable where missing values are to be imputed. Logistic regression was used for variables with categorical values and predictive mean matching regression for variables with integer values (i.e. hedging, depression and anxiety). All imputation models were performed with 50 iterations and the number of imputations was set to 100. Hence, this resulted in a total of 100 completed datasets. After the imputations, convergence plots were inspected. In addition, in order to see whether the imputed values of the continuous variables were reasonable, density plots of the observed and the imputed data are checked. When the latter yielded no problematic findings, the completed datasets were analysed separately and their results combined using Rubin's Rules (Rubin, 1987).

Sensitivity analysis

As in the previous paper, the last analysis consisted out of a sensitivity analysis to assess the impact of item non-response. For the sensitivity analysis a not missing at random assumption is set for key variables hedging, avoidance, anxiety and depression. We assumed that hedging, avoidance, depression and anxiety were worse when the value was missing.

For anxiety (GAD-7) and depression (PHQ-9), we increased each imputed value by a certain number *d*. This number was obtained in a manner similar-though slightly different-to the method used in the previous paper. A random number δ was first sampled from a normal distribution with mean half of the standard deviation of the distribution of PHQ-9/GAD-7, and the standard deviation the square root of this value. Thereafter, $d=\max(\delta,1)$, which restricts *d* to imply an increase in PHQ-9/GAD-7. Consequently, *d* is added to the imputed value under the missingness at random instead of δ. The newly imputed value is then rounded and bound at the maximum possible value. In that way, an integer number on the original scale is obtained.

For avoidance, missings were assumed to have displayed at least some avoiding behavior. Since the scale is dichotomized prior to the analysis, the actual score on the scale is irrelevant.

Finally, a different method for hedging was used than the one in the previous paper. We opted for a new approach considering that, for this analysis, we used a median split to dichotomize hedging. First, we specified a binomial logistic regression model with hedging as the outcome. The predictors in this model were the same as those used in the imputation model for hedging during MI. This model was fitted using respondents with no missing values for hedging and the linear predictor was calculated for each of the respondents. Thereafter, a random number δ was sampled from a normal distribution with mean half the standard deviation of the distribution of the linear predictor scores and standard deviation the square root of this value. The number *d* was specified in a similar way as in the sensitivity of anxiety in depression, that is $d=\max(\delta,0.2\left(\frac{e^{lp}}{1+e^{lp}}\right))$. Consequently, there is a minimum increase of 20% in the predicted probability on hedging. The logistic model was then fitted using respondents with a missing value for hedging, the linear predictor was calculated and *d* was added to the value of the linear predictor. The inverse logit of the new value of the linear predictor was then calculated to obtain the predicted probability for each of the non-responders. Then, the predicted probability was used in a Bernoulli trial to decide whether the respondent was classified as the lower 50% of hedging or the upper 50%.

The results of the analyses using the complete case dataset and multiply imputed datasets under the MAR and MNAR assumption can be found in supplementary tables 3-10.

Supplementary table 3. Descriptives hedging

	Complete cases N (%)	Imputations	Sens Anal
No hedging	2278 (49.18%)	2939 (47.84%)	2736 (44.53%)
Hedging	2354 (50.82%)	3204 (52.16%)	3408 (55.47%)

Supplementary table 4. RRs, hedging

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.32 (1.19-1.46)	1.28 (1.17-1.41)	1,23 (1,12-1,36)
-spoke to colleagues	1.20 (1.05-1.36)	1.23 (1.09-1.40)	1,22 (1,07-1,39)
-represented yourself	0.98 (0.92-1.04)	0.99 (0.93-1.05)	0,99 (0,93-1,05)
-medical professional support	1.24 (1.17-1.33)	1.22 (1.15-1.30)	1,20 (1,13-1,28)
-independent solicitor	1.01 (0.90-1.12)	0.98 (0.89-1.09)	0,98 (0,88-1,10)
-BMA employment advice service	0.79 (0.71-0.88)	0.81 (0.74-0.90)	0,82 (0,73-0,91)
-BMA counselling	0.99 (0.89-1.11)	0.96 (0.86-1.07)	0,95 (0,85-1,07)
Perceived support:			
-management	0.98 (0.96-1.00)	0.98 (0.96-1.00)	0,98 (0,96-1,01)
-colleagues	0.95 (0.93-0.98)	0.96 (0.94-0.98)	0,96 (0,94-0,99)
-medical professional support	0.98 (0.95-1.01)	0.98 (0.95-1.01)	0,99 (0,95-1,02)
-defense organisation	1.03 (1.00-1.06)	1.03 (1.00-1.06)	1,03 (1,00-1,06)
Process related issues:			
-normal process not followed	1.01 (0.99-1.03)	1.01 (0.99-1.03)	1,01 (0,99-1,03)
-documentary record was fair	0.98 (0.95-1.00)	0.98 (0.96-1.00)	0,98 (0,96-1,00)
-time scale was protracted	1.05 (1.03-1.07)	1.05 (1.03-1.07)	1,04 (1,02-1,06)
-informed of bringing representation	0.96 (0.94-0.98)	0.97 (0.95-0.99)	0,97 (0,95-0,99)
-inappropriate use of risk process	1.03 (1.00-1.05)	1.02 (1.00-1.04)	1,01 (1,00-1,03)
-complaint due to dysfunctional team	0.99 (0.97-1.01)	0.99 (0.97-1.01)	0,99 (0,97-1,01)
-felt victimised	0.99 (0.96-1.02)	0.99 (0.97-1.01)	0,99 (0,97-1,01)
-clinical issues after complaint	1.05 (1.02-1.07)	1.04 (1.01-1.06)	1,03 (1,01-1,06)
-felt bullied	1.03 (1.01-1.05)	1.03 (1.01-1.05)	1,02 (1,00-1,04)
-managers undermined position	1.01 (0.99-1.04)	1.01 (0.99-1.03)	1,01 (0,99-1,03)
-colleagues took advantage	1.02 (1.00-1.05)	1.02 (1.00-1.04)	1,02 (1,00-1,04)
Worrying about the complaint:			
-loss of livelihood	1.11 (1.09-1.13)	1.11 (1.09-1.13)	1,10 (1,08-1,12)
-public humiliation	1.14 (1.12-1.16)	1.13 (1.12-1.15)	1,12 (1,10-1,14)
-professional humiliation	1.15 (1.12-1.17)	1.14 (1.12-1.16)	1,12 (1,10-1,15)
-practice restricted	1.10 (1.08-1.12)	1.10 (1.08-1.12)	1,09 (1,07-1,11)
-family problems	1.12 (1.10-1.14)	1.11 (1.09-1.13)	1,10 (1,08-1,12)
-marked record	1.14 (1.12-1.17)	1.13 (1.11-1.16)	1,12 (1,10-1,14)
-financial costs	1.11 (1.09-1.14)	1.11 (1.09-1.13)	1,10 (1,08-1,12)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary table 5. Descriptives avoidance

	Complete cases N (%)	Imputations	Sens Anal
No avoidance	2535 (54.32%)	3221 (52.43%)	2535 (41.26%)
Avoidance	2132 (45.68%)	2923 (47.57%)	3609 (58.74%)

Supplementary table 6. RR's, avoidance

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.13 (1.02-1.24)	1.15 (1.05-1.27)	1.08 (1.01-1.15)
-spoke to colleagues	0.97 (0.86-1.09)	1.01 (0.90-1.13)	1.00 (0.92-1.09)
-represented yourself	1.08 (1.01-1.15)	1.07 (1.01-1.15)	1.03 (0.98-1.08)
-medical professional support	1.19 (1.11-1.28)	1.19 (1.12-1.27)	1.13 (1.07-1.18)
-independent solicitor	1.20 (1.08-1.33)	1.19 (1.08-1.30)	1.13 (1.05-1.22)
-BMA employment advice service	1.25 (1.15-1.36)	1.24 (1.14-1.34)	1.12 (1.05-1.19)
-BMA counselling	1.29 (1.17-1.43)	1.25 (1.14-1.38)	1.15 (1.07-1.24)
Perceived support:			
-management	0.91 (0.89-0.94)	0.91 (0.89-0.93)	0.95 (0.93-0.96)
-colleagues	0.90 (0.88-0.92)	0.90 (0.89-0.92)	0.94 (0.93-0.96)
-medical professional support	0.98 (0.95-1.01)	0.98 (0.95-1.01)	0.99 (0.97-1.01)
-defense organisation	0.96 (0.93-0.99)	0.96 (0.93-0.99)	0.98 (0.96-1.00)
Process related issues:			
-normal process not followed	1.08 (1.06-1.11)	1.07 (1.05-1.09)	1.04 (1.03-1.06)
-documentary record was fair	0.93 (0.91-0.95)	0.94 (0.92-0.96)	0.96 (0.94-0.98)
-time scale was protracted	1.11 (1.09-1.14)	1.10 (1.07-1.12)	1.06 (1.04-1.07)
-informed of bringing representation	0.95 (0.93-0.98)	0.96 (0.94-0.98)	0.97 (0.96-0.99)
-inappropriate use of risk process	1.11 (1.09-1.13)	1.10 (1.08-1.12)	1.06 (1.04-1.07)
-complaint due to dysfunctional team	1.09 (1.07-1.11)	1.08 (1.06-1.10)	1.05 (1.03-1.06)
-felt victimised	1.10 (1.08-1.13)	1.09 (1.07-1.11)	1.06 (1.04-1.07)
-clinical issues after complaint	1.14 (1.11-1.16)	1.11 (1.08-1.13)	1.07 (1.06-1.09)
-felt bullied	1.13 (1.11-1.15)	1.11 (1.09-1.13)	1.07 (1.06-1.09)
-managers undermined position	1.13 (1.11-1.15)	1.11 (1.09-1.13)	1.07 (1.06-1.08)
-colleagues took advantage	1.13 (1.11-1.16)	1.11 (1.09-1.14)	1.07 (1.06-1.09)
Worrying about the complaint:			
-loss of livelihood	1.15 (1.13-1.17)	1.14 (1.12-1.16)	1.09 (1.07-1.10)
-public humiliation	1.15 (1.13-1.18)	1.15 (1.12-1.17)	1.09 (1.08-1.11)
-professional humiliation	1.16 (1.13-1.19)	1.15 (1.13-1.18)	1.09 (1.07-1.11)
-practice restricted	1.14 (1.12-1.16)	1.14 (1.11-1.16)	1.08 (1.07-1.10)
-family problems	1.15 (1.13-1.17)	1.14 (1.12-1.16)	1.08 (1.07-1.10)
-marked record	1.14 (1.12-1.17)	1.14 (1.11-1.16)	1.08 (1.06-1.10)
-financial costs	1.16 (1.14-1.18)	1.15 (1.13-1.17)	1.09 (1.08-1.11)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary table 7. Descriptives depression

	Complete cases N (%)	Imputations	Sens Anal
No depression	1710 (81.96%)	1846 (81.80%)	1818(80.55%)
Depression	376 (18.02%)	411 (18.20%)	439 (19.45%)

Supplementary table 8. RRs, depression

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.54 (1.10-2.16)	1.46 (1.06-2.02)	1.42 (1.04-1.96)
-spoke to colleagues	0.58 (0.44-0.76)	0.64 (0.48-0.84)	0.64 (0.49-0.84)
-represented yourself	1.31 (1.07-1.60)	1.29 (1.06-1.57)	1.27 (1.05-1.54)
-medical professional support	1.34 (1.09-1.64)	1.31 (1.07-1.60)	1.29 (1.06-1.57)
-independent solicitor	1.91 (1.50-2.44)	1.85 (1.45-2.36)	1.82 (1.44-2.30)
-BMA employment advice service	2.14 (1.74-2.64)	2.06 (1.68-2.52)	1.99 (1.62-2.43)
-BMA counselling	2.06 (1.62-2.62)	1.91 (1.50-2.44)	1.87 (1.47-2.37)
Perceived support:			
-management	0.74 (0.68-0.81)	0.77 (0.71-0.83)	0.77 (0.72-0.83)
-colleagues	0.75 (0.70-0.80)	0.77 (0.72-0.83)	0.78 (0.73-0.83)
-medical professional support	0.84 (0.76-0.92)	0.84 (0.77-0.93)	0.84 (0.77-0.92)
-defense organisation	0.82 (0.76-0.90)	0.84 (0.77-0.91)	0.84 (0.77-0.91)
Process related issues:			
-normal process not followed	1.16 (1.09-1.24)	1.15 (1.08-1.23)	1.15 (1.08-1.22)
-documentary record was fair	0.77 (0.72-0.83)	0.80 (0.75-0.86)	0.80 (0.75-0.86)
-time scale was protracted	1.20 (1.12-1.29)	1.20 (1.12-1.29)	1.19 (1.11-1.28)
-informed of bringing representation	0.95 (0.88-1.02)	0.96 (0.89-1.03)	0.95 (0.89-1.02)
-inappropriate use of risk process	1.20 (1.13-1.28)	1.18 (1.11-1.26)	1.18 (1.11-1.25)
-complaint due to dysfunctional team	1.23 (1.16-1.30)	1.19 (1.12-1.25)	1.18 (1.12-1.25)
-felt victimised	1.28 (1.21-1.35)	1.23 (1.17-1.30)	1.23 (1.16-1.29)
-clinical issues after complaint	1.30 (1.23-1.37)	1.22 (1.15-1.29)	1.22 (1.15-1.28)
-felt bullied	1.32 (1.25-1.40)	1.28 (1.22-1.35)	1.27 (1.21-1.34)
-managers undermined position	1.32 (1.25-1.39)	1.27 (1.20-1.34)	1.26 (1.20-1.32)
-colleagues took advantage	1.27 (1.21-1.34)	1.22 (1.16-1.29)	1.22 (1.15-1.28)
Worrying about the complaint:			
-loss of livelihood	1.43 (1.34-1.53)	1.43 (1.34-1.53)	1.40 (1.31-1.50)
-public humiliation	1.40 (1.30-1.50)	1.38 (1.29-1.48)	1.36 (1.27-1.45)
-professional humiliation	1.58 (1.44-1.72)	1.53 (1.40-1.66)	1.48 (1.37-1.61)
-practice restricted	1.40 (1.31-1.49)	1.39 (1.31-1.47)	1.35 (1.28-1.44)
-family problems	1.48 (1.39-1.57)	1.46 (1.38-1.55)	1.43 (1.35-1.52)
-marked record	1.56 (1.42-1.72)	1.53 (1.40-1.67)	1.47 (1.35-1.61)
-financial costs	1.45 (1.36-1.55)	1.43 (1.34-1.52)	1.40 (1.31-1.48)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary table 9. Descriptives anxiety

	Complete cases N (%)	Imputations	Sens Anal
No anxiety	1726 (83.95%)	1891 (83.76%)	1872 (82.93%)
Anxiety	330 (16.05%)	366 (16.24%)	385 (17.07%)

Supplementary table 10. RRs, anxiety

Item	RRcc[a] (95% CI)	RRmar[b] (95% CI)	RRmnar[c] (95% CI)
Actual support:			
-spoke to family/friends	1.57 (1.09-2.24)	1.58 (1.11-2.26)	1.56 (1.09-2.22)
-spoke to colleagues	0.62 (0.46-0.84)	0.69 (0.51-0.94)	0.70 (0.52-0.95)
-represented yourself	1.20 (0.97-1.50)	1.19 (0.96-1.47)	1.18 (0.95-1.46)
-medical professional support	1.08 (0.88-1.34)	1.15 (0.93-1.42)	1.14 (0.93-1.41)
-independent solicitor	1.88 (1.44-2.45)	1.70 (1.29-2.23)	1.70 (1.31-2.21)
-BMA employment advice service	1.75 (1.38-2.22)	1.71 (1.35-2.17)	1.69 (1.33-2.13)
-BMA counselling	1.88 (1.42-2.47)	1.74 (1.33-2.29)	1.71 (1.31-2.25)
Perceived support:			
-management	0.78 (0.72-0.85)	0.80 (0.74-0.87)	0.80 (0.74-0.87)
-colleagues	0.76 (0.71-0.82)	0.78 (0.73-0.84)	0.79 (0.73-0.84)
-medical professional support	0.87 (0.78-0.96)	0.87 (0.79-0.96)	0.87 (0.79-0.96)
-defense organisation	0.87 (0.79-0.95)	0.87 (0.79-0.95)	0.87 (0.80-0.95)
Process related issues:			
-normal process not followed	1.20 (1.13-1.29)	1.18 (1.10-1.26)	1.17 (1.10-1.25)
-documentary record was fair	0.78 (0.72-0.85)	0.81 (0.75-0.87)	0.81 (0.76-0.88)
-time scale was protracted	1.19 (1.10-1.28)	1.16 (1.08-1.26)	1.16 (1.08-1.25)
-informed of bringing representation	0.94 (0.86-1.02)	0.94 (0.87-1.02)	0.94 (0.87-1.01)
-inappropriate use of risk process	1.19 (1.11-1.28)	1.17 (1.10-1.25)	1.17 (1.10-1.25)
-complaint due to dysfunctional team	1.22 (1.15-1.30)	1.19 (1.12-1.26)	1.18 (1.11-1.25)
-felt victimised	1.27 (1.19-1.35)	1.22 (1.15-1.30)	1.22 (1.15-1.29)
-clinical issues after complaint	1.27 (1.19-1.35)	1.20 (1.13-1.28)	1.20 (1.13-1.27)
-felt bullied	1.33 (1.25-1.42)	1.30 (1.22-1.38)	1.29 (1.22-1.36)
-managers undermined position	1.30 (1.23-1.38)	1.25 (1.18-1.33)	1.25 (1.18-1.32)
-colleagues took advantage	1.26 (1.19-1.34)	1.22 (1.15-1.30)	1.22 (1.15-1.29)
Worrying about the complaint:			
-loss of livelihood	1.40 (1.30-1.50)	1.40 (1.30-1.50)	1.38 (1.29-1.48)
-public humiliation	1.45 (1.34-1.56)	1.43 (1.33-1.54)	1.40 (1.30-1.51)
-professional humiliation	1.53 (1.39-1.68)	1.52 (1.38-1.66)	1.48 (1.36-1.62)
-practice restricted	1.33 (1.24-1.42)	1.33 (1.25-1.42)	1.32 (1.23-1.40)
-family problems	1.44 (1.35-1.54)	1.44 (1.35-1.53)	1.42 (1.34-1.51)
-marked record	1.50 (1.36-1.66)	1.49 (1.36-1.64)	1.46 (1.33-1.61)
-financial costs	1.40 (1.31-1.50)	1.38 (1.29-1.47)	1.36 (1.28-1.45)

[a] RRcc = risk ratios when only using complete cases
[b] RRmar = risk ratios when imputed datasets are used
[c] RRmnar = risk ratios under the not missing at random assumption

Supplementary file S3: Summary box to illustrate factors associated with a positive or negative impact on doctor's wellbeing and clinical practice when there is an investigation into a complaint.

Factors associated with a negative impact on doctors' wellbeing	Factors associated with a positive impact on doctors' wellbeing
Prolonged timescale	Rapid resolution with fixed timescales
Failure to follow correct process	Accurate record keeping of meetings shared promptly with all parties
Failure to support whistleblowers	Being kept informed at all times of progress in the investigation
Bullying	Support from management
Being excluded from work and prevented from accessing colleagues support	Being able to speak to and seek support from colleagues
Inappropriate use of complaints processes by managers and colleagues	Being informed about rights regarding representation

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Contained in the title
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2-3
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5-7
Objectives	3	State specific objectives, including any pre-specified hypotheses	7
Methods			
Study design	4	Present key elements of study design early in the paper	8
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	8
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	8
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	10-12
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	10-12
Bias	9	Describe any efforts to address potential sources of bias	*COMPARISON OF SAMPLE WITH SAMPLING FRAME: p 8 and table 1. MISSINGNESS (AT RANDOM/NOT AT RANDOM): p 13-14*
Study size	10	Explain how the study size was arrived at	Limited by the response rate to the survey
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and	12

		why	
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	13-14
		(*b*) Describe any methods used to examine subgroups and interactions	13
		(*c*) Explain how missing data were addressed	13
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	N/A
		(*e*) Describe any sensitivity analyses	p13-14, supplementary file S2
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	8
		(b) Give reasons for non-participation at each stage	8
		(c) Consider use of a flow diagram	N/A
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Tables 1 and 2
		(b) Indicate number of participants with missing data for each variable of interest	Table 3
Outcome data	15*	Report numbers of outcome events or summary measures	Table 4
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Table 4
		(*b*) Report category boundaries when continuous variables were categorized	p11-12, supplementary file S2
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses	p18, supplementary file S2
Discussion			
Key results	18	Summarise key results with reference to study objectives	19
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	19
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from	20-22

		similar studies, and other relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	20
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	25

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.