

BMJ Open Cross-sectional exploration of the impact of the Dr Bawa-Garba case on doctors' professional behaviours and attitudes towards the regulator

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ABSTRACT

Objective This paper examines the impact on doctors' attitudes towards the General Medical Council (GMC) and on professional behaviours (reflective practice and raising concerns) following the Dr Bawa-Garba case.

Design A cross-sectional survey designed using the theoretical lens of the theory of planned behaviour (TPB) was administered from September 2017 to February 2019. By chance, this coincided with critical events in the Dr Bawa-Garba case.

Setting Primary and secondary care settings across a broad geographical spread in England.

Participants 474 doctors.

Outcome measures Attitudes towards the GMC and two professional behaviours in TPB dimensions.

Results Attitudes towards the GMC became more negative during the period that the Medical Practitioners Tribunal Service and GMC suspended and subsequently erased Dr Bawa-Garba from the medical register. Specifically, confidence that doctors are well regulated by the GMC and that the GMC's disciplinary procedures produce fair outcomes was rated more negatively. After this period, overall attitudes start to recover and soon returned close to baseline; however, confidence in how the GMC regulates doctors and their disciplinary procedures improved but still remained below baseline. There was no change in doctors' attitudes or intention to reflect or raise concerns.

Conclusions The lack of change in doctors' attitudes towards the GMC's guidance, the approachability of the regulator, defensive practice and professional behaviours as a response to the Dr Bawa-Garba case demonstrates the resilient and indelible nature of medical professionalism. At the time, professional bodies reported that repairing doctors' trust and confidence would take time and a significant effort to restore. However, this study suggests that attitudes are more fluid. Despite the high-profile nature of this case and concerns articulated by medical bodies regarding its impact on trust, the actual decline in doctors' overall attitudes towards the GMC was relatively short lived and had no measurable impact on professionalism.

BACKGROUND

Regulation of the medical profession is internationally recognised as being key to public

Strengths and limitations of this study

- Rigorous development of a survey and the use of the theory of planned behaviour.
- The unique context of survey administration covering critical time points in the Dr Bawa-Garba case.
- Survey participants were doctors active in medical practice in primary and secondary care and from a range of geographical settings in England.
- Weaknesses include our inability to calculate a response rate due to the third-party administration of the survey.
- We are unable to understand what restored attitudes so quickly; or why, despite declining attitudes, there was no impact on medical professionalism.

trust, protecting patients and assuring them that doctors are competent to provide safe care.¹ Over the past 15 years, there has been increasing emphasis on 'evidence-based trust', whereby the profession 'has moved on...from a position where trust alone was sufficient guarantee of fitness to practice, to one where that trust needs to be underpinned by objective assurance'.² Resultingly, doctors have been subject to greater external scrutiny by formal regulation systems and mechanisms. The regulator thus takes on a gatekeeping role, setting out the procedures that determine whether a doctor is trustworthy. These procedures are open to public scrutiny and must be seen as credible to ensure the trustworthiness of both the regulator and the doctor in question.

The importance of maintaining public trust to ensure effective treatment and wider compliance with public health programmes is well explored.³⁻⁵ It is recognised as a relevant issue internationally, with medical regulatory authorities around the world seeking to monitor and improve quality standards to maintain trust in medicine.⁶ The relationship

Table 1 Key events and chronology of the Bawa-Garba case (2011–2018)

| Date | Event |
|------------------|---|
| 18 February 2011 | Jack Adcock is treated by Hadiza Bawa-Garba at Leicester Royal Infirmary; he sadly died |
| 2 November 2015 | Isabel Amaro, a nurse in the case, is sentenced to a 3-year suspended jail sentence having been found guilty of manslaughter by gross negligence |
| 4 November 2015 | Dr Bawa-Garba is found guilty of manslaughter by gross negligence and given a 2-year suspended sentence |
| 8 December 2016 | Dr Bawa-Garba's appeal is denied |
| 13 June 2017 | The Medical Practitioners Tribunal Service (MPTS) suspends Dr Bawa-Garba for 12 months, refusing the GMC's application to erase her from the medical register |
| 8 December 2017 | GMC appeals the MPTS decision |
| 25 January 2018 | GMC wins the appeal; Dr Bawa-Garba is erased from the register |
| 11 June 2018 | Williams Review ⁴⁸ is published and new measures announced by the Secretary of State |
| 13 August 2018 | Dr Bawa-Garba wins appeal against being erased from the register, restoring previous 1-year suspension |

between trust, regulation and compliance is also mirrored in other professions and areas, for example, law, tax and policing.^{7–11} However, little is known about the impact of medical professionals' own trust in the regulator, and whether diminished trust results in lessened compliance with the professional behaviours defined, required and monitored by the regulator.¹²

In the UK, adverse incidents involving healthcare professionals and providers appear to have directly contributed to the aforementioned increase in scrutiny of medical professionals by the General Medical Council (GMC) and the implementation of the revalidation process for all UK doctors in 2013.^{13–14} Controversial disciplinary cases have affected professionals' trust in the GMC for decades.^{15–16} However, literature is lacking on the impact of these cases, the longevity of effects and how professionals' values, attitudes and behaviours (eg, in relation to compliance with regulated practices) may shift as a result. A recent example of lost trust on the side of professionals appears in the 2019 Independent Review by Hamilton¹⁷ following the GMC's decision to seek to remove Dr Bawa-Garba from the medical register. This review argued that, following the case, there was significant need to rebuild the relationship between the medical profession and the GMC.

The background to the Dr Bawa-Garba case is complex; the key events and chronology are depicted in table 1.

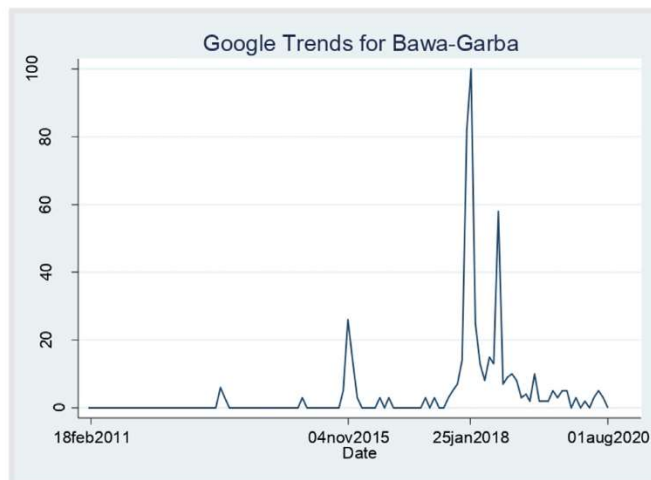


Figure 1 Google Trends for Dr Bawa-Garba with key dates shown: 18 February 2011, when Jack Adcock died; 4 November 2015, when Dr Bawa-Garba was found guilty of manslaughter; 25 January 2018, when the GMC won its appeal against the Medical Practitioners Tribunal Service and Dr Bawa-Garba was struck off; and 1 August 2020, the present. The second peak after 25 January 2018 is Dr Bawa-Garba's successful appeal in August 2018. GMC, General Medical Council.

The case revolved around the treatment of a 6-year old boy, Jack Adcock, who sadly died. He was treated by Dr Hadiza Bawa-Garba, a paediatric trainee.

The Dr Bawa-Garba case, in particular the GMC appeal against the decision of the Medical Practitioners Tribunal Service (MPTS), generated widespread interest (see figure 1) and was described as the case that 'rocked the medical profession from top to bottom'.¹⁸

The Dr Bawa-Garba case has prompted critical dialogue on the use of written reflection within professional portfolios and the role of doctors in raising concerns.¹⁸ These professional behaviours are inculcated at medical school,^{19–21} continuing into postgraduate medical training.^{22–23} While respecting the principles of safeguarding the public and the need for a 'just culture' where practitioners are accountable,²⁴ many felt an element of vulnerability and insecurity had been introduced through the threat of the use of Dr Bawa-Garba's personal reflections,²⁵ although their actual impact on the case has been disputed.²⁶

Many doctors identified and empathised with Dr Bawa-Garba, as encapsulated by the lay press case commentary, 'there but for the grace of God'.²⁷ Others challenged the GMC's punitive stance adopted towards Dr Bawa-Garba,²⁸ the criminalisation of medical errors and the impact of adopting this position on the culture of openness and learning from mistakes in the interests of patient safety.²⁹ Moreover, while it was recognised that accountability for one's actions is vital, many doctors felt that a distinction should be drawn between unintentional error and egregious violations, with an onus on systems as opposed to individuals,²⁹ and that moral intention, as opposed to clinical outcome, should influence decisions on doctors'

culpability in cases of harm to patients. Overall, it has been argued that the GMC's approach to the Dr Bawa-Garba case has highlighted the existence of a 'blame culture' and contributed to defensive medical practice.^{30 31}

Addressing the impact of the Dr Bawa-Garba case on the perception of the regulator, the Chair of the British Medical Association's (BMA) Council, Dr Chaand Nagpaul,³² said:

The GMC's intervention sent shockwaves through the profession— it now has serious work to do if it is to regain the trust and confidence of doctors. (October 2018)

The GMC acknowledged that reputational damage had been done³² and investigated the impact on perceptions of them. An analysis of media posts revealed that negative mentions in the media of the GMC exceeded 10% in 2018 compared with 2017; and 70% of 70 agenda motions about the GMC submitted for debate at the BMA's Annual Representative Meeting in summer 2018 were negative compared with one negative motion submitted in 2017.³² Independent research commissioned by the GMC to investigate stakeholders' perceptions of them showed that three in four doctors had lost some confidence in the GMC over the previous 12 months, mainly because of this particular case, and only 34% of doctors expressed confidence in how they were regulated by the GMC, down from 57% in a similar survey in 2016.³³ These reactions led the GMC to name rebuilding trust between them and the profession as a strategic priority.³²

Restoring the profession's confidence will take more time and we must sustain our efforts... A study by the Economist Intelligence Unit for KPMG on 'Building trust in regulation' highlights the fragile nature of the relationships which typically exist between regulators and those they regulate. Another 'lightening rod' case could easily undermine our work to date. (p.165)

Following the case, practitioners, regulatory and academic bodies produced a flurry of guidance to advise that reflection should be more objective and less emotional in tone.^{34–37} The message was to avoid retribution and judgement of self and others, and instead focus on synthesis and learning from serious untoward incidents. If attitudes towards raising a concern are dependent on a fear of negative consequences for oneself and for the doctors who are the subject of the concern, all these considerations might significantly affect the understanding and use of practices around raising concerns.

The current study examines the real-world impact of the Dr Bawa-Garba case and offers a unique opportunity to measure doctors' differential attitudes towards the GMC and professional behaviours at a time of a high-profile case within the medical profession. Understanding this is of key importance: following the handling of a case, regulators should understand when and how they might lose/regain trust; and rectify any

discrepancies in compliance. Moreover, understanding if changing attitudes to the regulator due to these incidents affect professional behaviour is important for ensuring quality of care.

METHODOLOGY

Theoretical framework

The theory of planned behaviour (TPB) was used to design the questionnaire. This theoretical framework was chosen recognising the importance of theory-based research and considering that TPB has been used to evaluate and teach medical professionalism³⁸ and in other healthcare disciplines,^{39 40} in the UK and internationally.⁴¹ The questionnaire about professional behaviours was designed based on published guidance for constructing a TPB questionnaire⁴² and based on an extensive qualitative study.⁴³

Study settings and participants

This study used the baseline data from a larger GMC-funded quasi-experimental study on the effectiveness of the 'Duties of a Doctor' (DoaD) programme.⁴³ Data were collected via paper and online questionnaires between September 2017 and November 2018 from a geographically spread sample of doctors either attending (intervention group) or not attending the DoaD programme (control group).

Questionnaire

The questionnaire was developed to capture attitudes towards the GMC and measure two professional behaviours, raising concerns and reflective practice, in four dimensions relating to the TPB (table 2). The TPB dimensions were:

1. Attitudes. The doctor's overall evaluation of the behaviour.
2. Subjective norms. The degree of pressure felt from various organisations and people (eg, peers) to act in a certain way.
3. Perceived behaviour control. Doctors' confidence and beliefs about their ability to carry out the behaviour.
4. Intentions. The extent to which doctors intend to carry out the behaviour in the future.

Twelve items on attitudes towards the GMC were subjected to the factor analysis and revealed two subscales: understanding and use of the GMC guidance; and approachability and understanding of the role of the GMC.⁴³

All items were measured on a 7-point bipolar or Likert scale, scored from 1 to 7. Higher scores showed more positive attitudes, norms, perceived control and intentions. The questionnaire also included demographic questions (eg, gender, role, work experience). The questionnaire was piloted with eight doctors to ascertain practical aspects (eg, timings) and face validity, which led to minor changes in wording and formatting.

**Table 2** Questionnaire measures

| Measures | Scale | Cronbach α | No of items | Example item |
|---------------------------|--|-------------------|-------------|---|
| Attitudes towards the GMC | Understanding and use of the GMC guidance | 0.582 | 5 | I am confident in applying the GMC guidance to professional dilemmas. |
| | Approachability and understanding of the role of the GMC | 0.421 | 7 | I am confident that doctors are well regulated by the GMC. |
| Raising concerns | Attitude | 0.668 | 4 | Overall, I think raising a concern is worthless—worthwhile |
| | Subjective norm | 0.855 | 11 | It is expected of me that I report a concern if I have one |
| | Perceived behavioural control | 0.612 | 2 | I am confident that I can raise a concern if I want to |
| | Intention | 0.713 | 3 | I want to raise a concern when I have one in my work environment |
| Reflection | Attitude | 0.878 | 8 | Reflecting on my practice makes me a better doctor |
| | Subjective norm | 0.870 | 12 | People who are important to me think I should reflect on my practice |
| | Perceived behavioural control | n.a. | 1 | For me to reflect on my practice is difficult—easy |
| | Intention | 0.821 | 3 | I intend to reflect on my practice |

GMC, General Medical Council.

Statistical analysis

We carried out exploratory analyses to analyse the impact of the Dr Bawa-Garba case. Participants were split into three groups based on when they completed the questionnaire with respect to two important dates: 25 January 2018, when the GMC appealed at the High Court leading to Dr Bawa-Garba being struck off the medical register; and 13 August 2018, when the appeal court ruled in favour of Dr Bawa-Garba. This produced three participant groups: those who filled in the questionnaire before 25 January; during the period 25 January–13 August and after 13 August.

We compared demographic characteristics between these groups using χ^2 tests, Fisher's exact tests (to test associations between categorical variables) and Kruskal-Wallis tests (non-parametric test to compare more than two groups). There were substantial differences between respondents at the different times (table 3); therefore, we used multivariable regression models to adjust for differences in participant characteristics (for ethnicity, country of training, years worked in the UK and experimental group). There was insufficient data to support a finer level of categorisation by ethnicity and, therefore, ethnicity was reduced to white or all other groups.

All scales were approximately Normally distributed. One-way analysis of variance (ANOVA) was used to compare mean scores between the three groups of doctors and then multiple regression was used to examine the effect of time periods on attitudes towards the GMC and two professional behaviours. We used a 5% significance level, except where looking at individual factor items where we applied a Bonferroni correction (reducing it

to 0.007 because of the analysis of 7 items: 0.05/7). Statistical analyses were performed with statistical software package SPSS V.25.

Patient and public involvement

No patients involved.

RESULTS

Participants

Four hundred and seventy-four doctors filled in the questionnaire: 253 in the before period (before 25 January), 149 during (25 January–13 August), and 71 after (after 13 August). Most participants were female (52%), white (64%), UK graduates (64%) and had more than 21 years of work experience in the UK (34%). See table 3 for details.

Attitudes towards the GMC

Understanding and use of the GMC guidance did not change significantly across three time periods: $F_{2,468} = 0.8$, $p=0.5$; multiple regression: time factor $p=0.3$ (table 4).

Ratings of the approachability and understanding of the role of the GMC were different between the three time points ($F_{2,468} = 5.3$, $p=0.005$). A multiple regression was tested including ethnicity, country of training and years worked in the UK (table 4). Attitudes towards the role of the GMC became more negative during the period of two key dates compared with before 25 January; but attitudes after 13 August were not different compared with attitudes before the initial key date (25 January).

Table 3 Demographic characteristics of study participants

| Variable | Total N=474 | Before (25 January) N=253 | During N=149 | After (13 August) N=71 | Statistical test |
|---|----------------|------------------------------|-----------------|---------------------------|------------------------------------|
| Gender (proportion female)* | 48% (224/469) | 46% (115/252) | 48% (71/147) | 54% (38/70) | $\chi^2 \dagger = 1.7, p = 0.4$ |
| Ethnicity† | | | | | Exact p=0.001 |
| White | 65% (302/463) | 71% (177/251) | 62% (89/144) | 53% (36/68) | |
| Mixed | 2% (11/463) | 3% (8/251) | 0% (0/144) | 4% (3/68) | |
| Asian/Asian British | 24% (109/463) | 18% (46/251) | 32% (46/144) | 25% (17/68) | |
| Black/Black British | 4% (17/463) | 3% (7/251) | 3% (4/144) | 9% (6/68) | |
| Other | 5% (24/463) | 5% (13/251) | 4% (5/144) | 9% (6/68) | |
| Country of training (proportion UK trained) | 64% (299) | 74% (186/251) | 59% (86/145) | 38% (27/71) | $\chi^2 \dagger = 33.3, p < 0.001$ |
| Years working in the UK | | | | | H=6.5, p=0.011 |
| <1 | 12% (56/471) | 5% (12/252) | 10% (15/147) | 41% (29/71) | |
| 1–4 | 17% (69/471) | 5% (12/252) | 33% (48/147) | 13% (9/71) | |
| 5–10 | 9% (46/471) | 8% (21/252) | 12% (17/147) | 11% (8/71) | |
| 11–20 | 30% (141/471) | 35% (88/252) | 29% (42/147) | 16% (11/71) | |
| >21 | 34% (158/471) | 47% (119/252) | 17% (25/147) | 20% (14/71) | |
| Experimental group | | | | | Exact p<0.001 |
| Control | 51% (239/473) | 70% (178/253) | 26% (38/149) | 32% (23/71) | |
| Intervention | 49% (234/473) | 30% (75/253) | 74% (111/149) | 68% (48/71) | |

*Omitting two individuals who preferred not to state their gender

†Omitting seven individuals who preferred not to state their ethnicity

We additionally analysed the seven items making up the second factor (approachability and understanding of the role of the GMC) individually (table 5). After Bonferroni correction, two items showed a statistically significant effect of time: ‘I am confident that doctors

are well regulated by the GMC’ (figure 2A) and ‘I am confident that the GMC’s disciplinary procedures produce fair outcomes’ (figure 2B). In the during phase, both were markedly lower (0.7 and 1.1 units lower on a 7-point scale, respectively). In the after period, both

Table 4 Results from the multiple regression analysis examining whether time has an effect on the two subscales of the attitudes towards the GMC

| Variable | Understanding and use of the GMC guidance | | Approachability and understanding of the role of the GMC | |
|---|--|---------|---|---------|
| | B (95% CI) | P value | B (95% CI) | P value |
| Ethnicity (not being white) | 0.0 (–0.2 to 0.2) | 0.9 | –0.1 (–0.3 to 0.1) | 0.6 |
| Country of training (not trained in the UK) | 0.6 (0.3 to 0.8) | <0.001 | 0.6 (0.3 to 0.9) | <0.001 |
| Years working in the UK | 0.1 (0.0 to 0.1) | 0.1 | 0.0 (–0.1 to 0.1) | 0.6 |
| Experimental group | 0.1 (–0.1 to 0.4) | 0.3 | 0.4 (0.1 to 0.6) | 0.003 |
| Time | n/a | 0.3 | During versus before: –0.5 (–0.7 to 0.2) After versus before: –0.1 (–0.4, 0.2) | <0.001 |
| Model statistics | $F_{6,447} = 5.2, p < 0.001$ Adjusted $R^2 = 5\%$ | | $F_{6,447} = 10.6, p < 0.001$ Adjusted $R^2 = 11\%$ | |

GMC, General Medical Council; n/a, not available.

Table 5 Multiple regressions examining whether time influences the individual items of the second factor

| Item | Likelihood ratio test for the effect of time | Difference observed (for items significant after Bonferroni correction) |
|---|--|--|
| I do not understand the role of the GMC | p=0.021 | |
| I would feel uncomfortable speaking to someone from the GMC about the GMC guidance | p=0.2 | |
| I feel the GMC are approachable as an organisation | p=0.024 | |
| I am confident that doctors are well regulated by the GMC | p=0.002 | During versus before: -0.7 (-1.0, -0.3) After versus before: -0.5 (-1.0, 0.0) |
| Maintaining my GMC registration helps me to reflect on my practice | p=0.6 | |
| The quality of patient care I provide is diminished because I practise defensively as a consequence of medical regulation | p=0.064 | |
| I am confident that the GMC's disciplinary procedures produce fair outcomes | p<0.001 | During versus before: -1.1 (-1.4, -0.7) After versus before: -0.5 (-0.9, 0.0) |

GMC, General Medical Council.

had recovered somewhat, but remained lower than the baseline (both 0.5 units lower).

Professional behaviours

Raising concerns

There were no significant differences in social norms ($F_{2,469} = 0.3$, $p=0.8$), perceived behaviour control ($F_{2,468} = 0.3$, $p=0.8$), or intentions ($F_{2,469} = 1.7$, $p=0.2$) to raise a concern across three time periods. Overall multiple regression model were also non-significant for these scales: social norms ($F_{5,449} = 1.4$, $p=0.2$, adjusted $R^2 < 1\%$), perceived behaviour control ($F_{5,448} = 0.9$, $p=0.5$, adjusted $R^2=0\%$), and intentions ($F_{5,449} = 1.3$, $p=0.3$, adjusted $R^2 < 1\%$).

ANOVA showed a significant difference across three time periods in attitudes towards raising a concern ($F_{2,468} = 5.4$, $p=0.005$); however, the overall model tested with multiple regression ($F_{5,448} = 7.8$, $p<0.001$, adjusted $R^2=7\%$) revealed no effect of time period ($p=0.7$; during vs before B 0.0, 95% CI -0.2,0.3; after vs before: B 0.1, 95% CI -0.2, 0.5).

Reflective practice

The analysis did not show significant differences in any TPB factors for engagement in reflective practice across three time periods: attitudes ($F_{2,469} = 2.2$, $p=0.1$), social norms ($F_{2,466} = 0.4$, $p=0.7$; multiple regression: $F_{5,448} = 1.5$, $p=0.2$, adjusted $R^2 < 1\%$), perceived behaviour control ($F_{2,467} = 0.7$, $p=0.5$), or intentions ($F_{2,469} = 2.6$, $p=0.08$). Multiple regression models were significant for attitudes ($F_{5,449} = 5.5$, $p<0.001$, adjusted $R^2=5\%$), perceived behaviour control ($F_{5,448} = 3.2$, $p=0.008$, adjusted $R^2=2\%$) and intentions ($F_{5,450} = 3.8$, $p=0.002$, adjusted $R^2=3\%$); however, time was not significant predictor for any of the reflective practice TPB factors ($p\geq 0.08$).

DISCUSSION

Summary of findings

Our study shows how and in what ways doctors' attitudes towards the regulator fell during the GMC's controversial handling of the Dr Bawa-Garba case. The study revealed that approachability and understanding of the role of the GMC was rated more negatively during the period between the MPTS decision and the GMC's appeal. More specifically, these changes were driven by a significant decrease in the attitudinal question items regarding confidence that doctors are well regulated by the GMC and the GMC's disciplinary procedures ability to produce fair outcomes. The fall in attitudes recovered with time but remained lower than the baseline. Moreover, despite the transient change in attitudes towards the regulator, doctors' understanding and use of the GMC guidelines and the four TPB factors (attitudes, social norms, perceived behaviour control and intentions) of two professional behaviours (reflective practice and raising concerns) did not significantly change through this period.

This paper supplements the GMC commissioned surveys in 2018³² by offering nuanced insight into the trajectory of this trend and investigating associated changes in professional behaviours. The lack of change in professional behaviours, despite fluctuating attitudes to the regulator, also raises interesting questions about where the locus of control is regarding medical professionalism. The GMC currently regulates the professionalism of registered doctors by breaking this concept down into stated professional behaviours and characteristics¹² and positioning itself as supporting adherence and punitively discouraging lack of compliance to these behaviours. For professionals, however, the nuances of professionalism may be predominantly learnt through experience, immersion and intuition in the clinical context, under the watchful

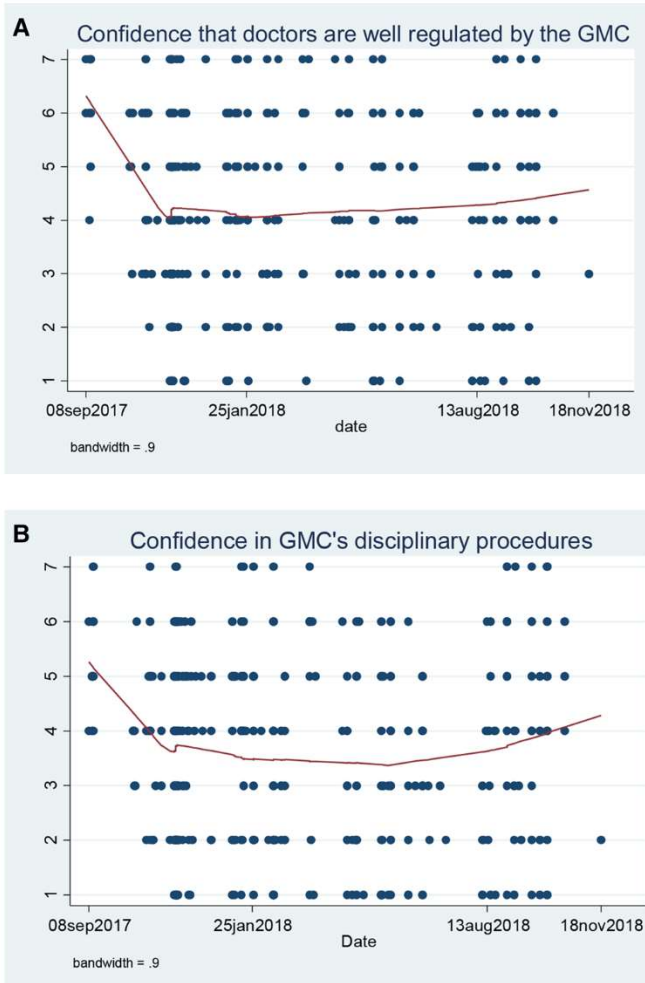


Figure 2 (A) The changes of participants' responses to 'I am confident that doctors are well regulated by the GMC' over time. Line fitted is a lowess curve. (B) The changes of participants' responses to 'I am confident that the GMC's disciplinary procedures produce fair outcomes' over time. Line fitted is a lowess curve. GMC, General Medical Council.

eye of seniors and peers.^{44 45} As a result, the strong regulatory forces on doctors' professionalism are likely to be the (more traditional) principles of self-regulation and professional autonomy,⁴⁶ and their professional practices are less likely to be swayed by external forces. We, thus, posit that fluctuating trust in the regulator may have greater impact on doctors' experience of medical culture (eg, fear of retribution, blame culture) than on their actual practice.

Strengths and limitations

This paper, thus, offers a rigorous, theory-based evaluation of the impact of a high-profile medical case involving the regulator on doctor's real-world attitudes and professional behaviours, through the use of a unique data set collected during the Dr Bawa-Garba case (from September 2017 to November 2018). Participants were from a variety of clinical backgrounds, levels of experience and geographically spread locations. Study participants, however, predominantly identified as white and

had more than 11 years of work experience. Most of our sample are, therefore, different from Dr Bawa-Garba, who is a junior doctor from a black, Asian and minority ethnic background. We have adjusted the analysis for ethnicity and years of experience but cannot be sure that there is not a response bias in our results.

A limitation of this study is that we were not able to calculate a response rate because the questionnaire was distributed by a third party (ie, National Health Service Trusts) and we were not able to obtain precise data on the numbers of doctors invited to take part in the study. The study for which this data was originally collected was not designed to investigate the impact of the case on doctors' professional behaviours. We cannot prove a causal relationship between any changes seen and events, although the close relationship in timing makes this the most likely explanation. In addition, there are multiple layers to doctors' attitudes towards professional behaviours, all of which relate to various aspects of these behaviours. This study investigated some key elements of attitudes towards the GMC and two professional behaviours (raising concerns and reflective practice) but these are not exhaustive. Similarly, we have picked key dates to split our sample for the analysis, however, the impact of the case might be more nuanced. For example, responses from trusts and other events were not taken into account as these are beyond this study's aims.

Relevance of findings and key implications

Following the Dr Bawa-Garba case, the GMC invested in numerous changes to restore the profession's confidence; pledged to support a profession under pressure, for example, by running dedicated programmes to support doctors under stress⁴⁷; pledged to increase their engagement with audiences and stakeholders³²; and committed themselves to incorporating different stakeholder lenses on professional issues. However, our study results showed that overall there was a short-lived negative impact on the medical profession's attitudes towards the regulator. In addition, the attitudinal change found in our study was seen in only some aspects of attitudes to the GMC, not universally across professional attitudes; this may have also contributed the lack of change in professional behaviour.

Our study has significant implications for policymakers, both nationally and internationally. We suggest that the tension caused by regulating context-specific and patient-centred professionalism using the criteria of a prescribed professional behaviours may grow if regulators are not willing to recognise the causal relationship between workplace factors and clinical errors. Subsequently, there may be increasing pressure for the regulator as well as the profession to be fully open to scrutiny. This paper also has significant implications for researchers and medical educators and suggests areas for productive future research. Our evidence showed that there were no changes in professional behaviours (reflective practice or raising concerns) correlated to more negative attitudes to the regulator. This raises questions about the link between regulation

and professional behaviour; and thus, how professional behaviours become intrinsic to a professional.

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Contributors AG was the lead for the research. AG, AM and S-JS designed the study, HP led on the quantitative data analysis. FG drafted the first version of the introduction. KA contributed writing about regulation and trust. All authors inputted into the interpretation of the data, write-up, critical revision and approved the final version for publication.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval The study received ethical approval from the UCL Research Ethics Committee (5490/001). Participants gave informed consent to take part in this study.

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Data availability statement No data are available. The data generated and analysed during the current study are not available, as consent for this has not been granted by participants.

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