

# Factors influencing junior doctors' choices of future specialty: trends over time and demographics based on results from UK national surveys

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## Abstract

**Objective:** To study trends in factors influencing junior doctors' choice of future specialty.

**Design:** Respondents were asked whether each of 15 factors had a great deal of influence on their career choice, a little influence or no influence on it. Percentages are reported of those who specified that a factor had a great deal of influence on their career choice.

**Setting:** UK.

**Participants:** A total of 15,765 UK-trained doctors who graduated between 1999 and 2012.

**Main outcome measures:** Questions about career choices and factors which may have influenced those choices, in particular comparing doctors who qualified in 2008–2012 with those who qualified in 1999–2002.

**Results:** Enthusiasm for and commitment to the specialty was a greater influence on career choice in the 2008–2012 qualifiers (81%) than those of 1999–2002 (64%), as was consideration of their domestic circumstances (43% compared with 20%). Prospects for promotion were less important to recent cohorts (16%) than older cohorts (21%), as were financial prospects (respectively, 10% and 14%). Domestic circumstances and working hours were considered more important, and financial prospects less important, by women than men. Inclination before medical school was rated as important by 41% of doctors who were over 30 years old, compared with 13% of doctors who were under 21, at the time of starting medical school.

**Conclusions:** The increasing importance of both domestic circumstances and enthusiasm for their specialty choice in recent cohorts suggest that today's young doctors prize both work-life balance and personal fulfilment at work more highly than did their predecessors. The differences in motivations of older and younger generations of doctors, men and women, and doctors who start medical school relatively late are worthy of note.

## Keywords

Physicians, junior, career choice, workforce, medical, medical education

## Introduction

Doctors' career choices of specialty are influenced by their interests, aptitudes, personal circumstances, values and attitudes, student experiences, beliefs about certain specialties (e.g. training structure, competition for places, quality of supervision) and their own career aspirations.<sup>1–3</sup> In a review of the factors associated with career choice of junior doctors who graduated in Europe, it was found that interest, enthusiasm and self-appraisal of skills were particularly important.<sup>3</sup> Differences by year of graduation and career stage, in factors that influence specialty choice, are also apparent.<sup>4–7</sup>

The impact of the feminisation of the medical workforce upon career choice is important, with research in the USA indicating that preference for a controllable lifestyle increased over an eight-year period to 2002, and this increase was observed in both male and female doctors.<sup>8</sup> In the UK, there is evidence to show that domestic circumstances were more important to both female and male doctors who graduated in 2008–2009 compared with 1993–2002.<sup>9</sup>

An understanding of the factors which influence doctors' career choices, and how attitudes vary among doctors who choose different specialties, is important for all those involved in the teaching and training of doctors. It should also help planners and policymakers when planning policy interventions to address shortage specialties.<sup>10</sup>

Reasons for choosing a medical specialty vary according to the intended specialty.<sup>2,10–12</sup> In the UK, lifestyle factors such as working hours, working conditions and domestic circumstances have been found to be more influential by those who choose general practice (family medicine) than by those who choose hospital practice.<sup>9</sup> Others have found that intending general practitioners choose general practice for its variety, continuity of care and work-life balance.<sup>13</sup>

The aim of this paper is to examine the evidence for temporal trends in self-expressed factors influencing specialty choice among junior doctors in successive year of qualification cohorts we have surveyed one year after graduation. We also report on these factors in relation to the timing of changes to postgraduate training in the UK, and in relation to gender, ethnicity, age at entry to medical school and chosen career specialty.

## Methods

The UK Medical Careers Research Group surveyed all UK medical graduates of 1999, 2000, 2002, 2008, 2009 and 2012. We sent multi-purpose questionnaires, with an emphasis on future career intentions, by hard copy mail and email one year after qualification. We sent several reminders to non-respondents. Small numbers of late responders completed a short form questionnaire which did not contain factor questions. Further details of the methodology are available elsewhere.<sup>14,15</sup> Doctors' contact details were provided by the General Medical Council.

One year after graduation, doctors were asked to specify their choice of specialty for their eventual career. Doctors could nominate up to three choices, described in as much detail as they wished, and could indicate an order of priority and whether any of their choices were tied – that is, of equal priority. This paper focuses on first choices (tied and untied). To facilitate analysis the authors grouped choices into five categories: general practice, hospital medical (physician) specialties, surgical specialties, psychiatry and other hospital specialties combined.

Doctors were asked to indicate how much each of 15 factors had influenced their choice of specialty: 'Wanting a career that fits my domestic situation', 'Wanting a career with acceptable hours/working conditions', 'Eventual financial prospects', 'Promotion/career prospects', 'Self-appraisal of own skills/aptitudes', 'Advice from others', 'Experience of chosen subject as student', 'A particular teacher/department', 'Inclinations before medical school', 'Experience of jobs so far', 'Enthusiasm/commitment: what I really want to do', 'Availability of postgraduate training places', 'Availability of career posts', 'The requirement to repay student debt' and 'Other reasons'. Answers were selected from 'Not at all', 'A little' and 'A great deal'. This list of factors was derived by the authors in two stages: themes were identified from relevant publications, and the list of themes was augmented by identifying themes which occurred regularly in doctors' comments to us, when they were asked to give reasons for their choices in their own words.

'Availability of postgraduate training places' and 'Availability of career posts' were included in the surveys of the graduates of 2008, 2009 and 2012, because we observed that doctors were mentioning these issues to us in appreciable numbers. The 2009 cohort were asked about these two factors and only four others: 'Wanting a career that fits my domestic situation', 'Wanting a career with acceptable hours/working conditions', 'Experience of chosen subject as student' and 'Enthusiasm/commitment: what I really want to do'. A further new theme, 'The requirement to repay student debt' was first used in the survey of the graduates of 2012.

From 2005, a new structure of postgraduate medical education was introduced in the UK which is known as Modernising Medical Careers.<sup>16</sup> This provided, among other innovations, for a two-year Foundation Programme for all graduates immediately following graduation, and an expectation that young doctors would enter specialist training at the start of their third postgraduate year. This change has required doctors to make their speciality choices earlier than in the past, and in analysis for this paper, as well as examining trends over the six cohorts, we have been interested in comparing the three cohorts before the change (the graduates of 1999, 2000 and 2002) with the three cohorts after the change (the graduates of 2008, 2009 and 2012), to ascertain whether there are discernible differences in the factors affecting career choices following the change in training structure.

We report standard summary statistics. To test statistical significance we used  $\chi^2$  statistics (reporting Yates's continuity correction where there was only one degree of freedom, and Mantel-Haenszel linear-by-linear  $\chi^2$  tests for linear trend) and binary logistic regression. Respondents were grouped for analysis according to year of qualification (in single years, or in the earlier or later cohort groups, as described above), gender, ethnic group (grouped by us for analysis as Asian, White, Mixed, Black and Other based on respondents' description of their ethnicity using a checklist based on Office for National Statistics guidelines, provided in our questionnaire), age at entry to medical school (grouped by us as under 21 years, 21 to 30 years and over 30 years) and first choice of specialty for their eventual career. We wanted to investigate the effect of cohort group, gender, ethnic group, age at entry and specialty chosen on each of the factors affecting career choice.

After univariable testing of each effect, we used binary logistic multivariable regression to analyse the effects of each factor while controlling for the effects of others. For each factor, a model was fitted with 'influenced career choice a great deal' as the dependent variable, and cohort group, gender,

ethnic group, age at entry to medical school and specialty choice as predictors. We included in the multi-variable modelling only those predictors which were significant in univariate analysis. To investigate the variation of the effect of factors in different year-of-qualification cohorts, we also assessed the significance of interaction terms between cohorts and the other significant predictors. Given the number of factors being tested simultaneously, in hypothesis testing, we applied a Bonferroni-type correction to  $p$  values and regarded  $p < 0.001$  as evidence of a significant difference.

## Results

### Response rates

Between 1999 and 2013, we surveyed 31,865 UK doctors one year after graduation from six year-of-graduation cohorts. The cohorts ranged in size from 4213 graduates in 1999 to a peak of 6795 graduates in 2008. After excluding 941 doctors who declined to participate, were known to have died, or were untraceable, the response rate was 55.4% (17,118/30,924). Response ranged from 46.1% (2415/5240) for the 2012 graduates to 68.9% (2978/4323) for the 2000 graduates; 1353 doctors answered the short form questionnaire which did not contain factor questions, reducing the number of useable responses for this study to 15,765.

### Factors influencing career choice

Tables 1 to 5 show the percentages of doctors who specified each factor as influencing their career choice a great deal, by year of graduation (Table 1), gender (Table 2), ethnic group (Table 3), age at entry to medical school (Table 4) and specialty chosen (Table 5). Table 6 shows the basic demographics of the cohorts. Denominators for the percentages are shown in footnotes to the tables, and numerators for the percentages in Tables 1 to 5 are shown in Tables 7 to 11, respectively. Denominators were defined as the number who replied to the relevant surveys.

Table 1 lists the factors in declining order of importance over all years of graduation combined. In every cohort, 'Enthusiasm/commitment' was the most important factor which influenced doctors' choice of specialty 'a great deal' (Table 1). Other consistently important factors included: 'Experience of jobs so far', 'Self-appraisal of own skills/aptitudes', 'Experience of chosen subject as student', and 'Wanting a career with acceptable hours/working conditions'.

'Domestic circumstances' was the only other factor to be rated as having a great deal of importance by

more than a quarter of participants. Factors which were rated as less important included: 'Eventual financial prospects', 'Inclinations before medical school' and 'Advice from others'. 'The requirement to repay student debt' was rated as an important determinant of specialty choice by only 2.3% of the graduates of 2012.

**Year of qualification.** Several factors increased in importance between the 1999 and 2012 cohorts. Tests for linear trend across the cohorts gave significant ( $p < 0.001$ ) results for 10 factors (Table 1). We combined cohorts from 1999–2002 and from 2008–2012 to form two groups for comparison, who graduated in the earlier or later cohorts (Table 1). Cohort differences, comparing the two groups, were significant for eight of the factors with  $p < 0.001$ . Appreciable percentage differences, however, were found for only two factors: domestic circumstances (20% in the earlier and 43% of later cohorts) and enthusiasm/commitment (rated as important by 64% in the earlier cohorts and by 81% in the later cohorts). Table 12 shows which factors graduates assigned a great deal of importance and 'a little' influence: the trends were very similar, except for a reduced percentage difference for enthusiasm/commitment. Numerators corresponding to Table 12 are in Table 7.

**Gender.** A significantly higher percentage of women than men rated, as being very important, 'Wanting a career with acceptable hours/working conditions' (61% women, 44% men) and 'Wanting a career that fits my domestic situation' (36% women, 23% men), both  $p < 0.001$ , Table 2. Women rated 'Promotion/ career prospects' (16% women, 23% men) and 'Eventual financial prospects' as less important than men (10% women, 17% men). Women rated 'Wanting a career that fits my domestic situation' and 'Wanting a career with acceptable hours/working conditions' as more important than did men in both the earlier and later cohorts (Table 2). Male doctors rated 'Promotion/ career prospects' and 'Eventual financial prospects' more important than did female doctors in both the earlier and later cohorts.

**Ethnicity.** Responses of doctors from five ethnic groups – White, Asian, Mixed, Black and Other – were compared for each factor. Using  $\chi^2_4$  tests, there were significant differences between the ethnic groups for six factors (at  $p < 0.001$ ), namely 'Eventual financial prospects', 'Availability of career posts', 'Promotion/ career prospects', 'Availability of post-graduate training places', 'Particular teacher/

**Table 1.** Trends across the cohorts – percentage of respondents for whom each factor had a great deal of influence on speciality choice.

| Factors affecting career choice                       | Earlier cohorts |      |      |      | Later cohorts |      |             |           |           |  | Earlier<br>1999–2002 | Later<br>2008–2012 |
|---|-----------------|------|------|------|---------------|------|-------------|-----------|-----------|--|----------------------|--------------------|
|   | 1999            | 2000 | 2002 | 2008 | 2009          | 2012 | All cohorts | 1999–2002 | 2008–2012 |  |                      |                    |
| Enthusiasm/commitment <sup>a</sup>                    | 66.6            | 63.8 | 61.3 | 78.4 | 83.9          | 81.4 | 72.3*       | 63.8*     | 81.1      |  |                      |                    |
| Experience of jobs so far <sup>b</sup>                | 52.5            | 53.6 | 57.1 | 49.3 | N/A           | 45.5 | 51.8*       | 54.5*     | 47.6      |  |                      |                    |
| Self-appraisal of own skills <sup>b</sup>             | 51.6            | 49.8 | 37.8 | 51.7 | N/A           | 49.4 | 47.9        | 46.2*     | 50.6      |  |                      |                    |
| Student experience of subject <sup>a</sup>            | 43.3            | 45.4 | 48.0 | 42.1 | 49.4          | 48.1 | 46.0        | 45.7      | 46.3      |  |                      |                    |
| Hours/working conditions <sup>a</sup>                 | 47.9            | 45.2 | 38.3 | 48.7 | 44.6          | 48.1 | 45.4*       | 43.6*     | 47.2      |  |                      |                    |
| Domestic circumstances <sup>a</sup>                   | 21.7            | 21.0 | 18.6 | 43.0 | 41.2          | 43.9 | 31.4*       | 20.4*     | 42.7      |  |                      |                    |
| Particular teacher/departments <sup>b</sup>           | 25.9            | 27.5 | 35.3 | 22.9 | N/A           | 23.1 | 27.1*       | 29.7*     | 23.0      |  |                      |                    |
| Promotion/career prospects <sup>b</sup>               | 24.1            | 22.5 | 16.5 | 15.8 | N/A           | 16.9 | 19.1*       | 20.9*     | 16.3      |  |                      |                    |
| Advice from others <sup>b</sup>                       | 17.4            | 18.6 | 16.7 | 13.1 | N/A           | 20.0 | 17.1        | 17.6      | 16.2      |  |                      |                    |
| Availability of career posts <sup>c</sup>             | N/A             | N/A  | N/A  | 13.1 | 15.5          | 23.1 | 16.9*       | N/A       | 16.9      |  |                      |                    |
| Availability of postgrad training places <sup>c</sup> | N/A             | N/A  | N/A  | 12.8 | 14.2          | 21.2 | 15.8        | N/A       | 15.8      |  |                      |                    |
| Inclinations before medical school <sup>b</sup>       | 13.3            | 14.0 | 15.3 | 15.3 | N/A           | 17.4 | 15.0*       | 14.2      | 16.2      |  |                      |                    |
| Eventual financial prospects <sup>b</sup>             | 14.7            | 14.1 | 14.3 | 9.0  | N/A           | 11.2 | 12.6*       | 14.4*     | 10.0      |  |                      |                    |
| Other reasons <sup>b</sup>                            | 6.2             | 6.4  | 5.3  | 6.2  | N/A           | 4.6  | 5.8         | 5.9       | 5.5       |  |                      |                    |
| To repay student debt <sup>d</sup>                    | N/A             | N/A  | N/A  | N/A  | N/A           | 2.3  | 2.3         | N/A       | 2.3       |  |                      |                    |

Percentages are of all respondents. \* in 'All cohorts' denotes significant ( $p < 0.001$ ) linear trend across all six cohorts; \* in 'Earlier' column denotes, significant difference (chi square,  $p < 0.001$ ) between the earlier and later cohort groups.

<sup>a</sup>N = 2399 for 1999, 2828 for 2000, 2778 for 2002, 2863 for 2008, 2547 for 2009, 2350 for 2012. 15,765 total; all cohorts included.

<sup>b</sup>N = As for footnote a, 13,218 total; all cohorts except 2009.

<sup>c</sup>N = As for footnote a, 7760 total; 2008, 2009, 2012 cohorts only.

<sup>d</sup>N = As for footnote a, 2350 total; 2012 cohort only.

**Table 2.** Gender differences, earlier and later cohorts, percentages of respondents for whom each factor had a great deal of influence on speciality choice.

| Factor affecting career choice                        | Men                               |                                 |                 | Women                             |                                 |                 |
|---|-----------------------------------|---------------------------------|-----------------|-----------------------------------|---------------------------------|-----------------|
|   | Earlier (1999–2002 graduates) (%) | Later (2008–2012 graduates) (%) | All cohorts (%) | Earlier (1999–2002 graduates) (%) | Later (2008–2012 graduates) (%) | All cohorts (%) |
| Enthusiasm/commitment <sup>a</sup>                    | 61.6                              | 80.0                            | 69.9            | 65.3*                             | 81.7                            | 73.8*           |
| Experience of jobs so far <sup>b</sup>                | 53.6                              | 45.1                            | 50.5            | 55.1                              | 49.0                            | 52.6            |
| Self-appraisal of own skills <sup>b</sup>             | 45.2                              | 46.2                            | 45.5            | 46.9                              | 53.1*                           | 49.5*           |
| Student experience of subject <sup>a</sup>            | 45.2                              | 45.3                            | 45.2            | 46.0                              | 46.9                            | 46.4            |
| Hours/working conditions <sup>a</sup>                 | 36.6                              | 38.2                            | 37.3            | 48.6*                             | 52.1*                           | 50.4*           |
| Domestic circumstances <sup>a</sup>                   | 14.8                              | 33.4                            | 23.2            | 24.3*                             | 47.7*                           | 36.4*           |
| Particular teacher/department <sup>b</sup>            | 30.4                              | 23.2                            | 27.8            | 29.3                              | 22.9                            | 26.6            |
| Promotion/career prospects <sup>b</sup>               | 24.9                              | 20.7                            | 23.4            | 18.1*                             | 13.8*                           | 16.3*           |
| Advice from others <sup>b</sup>                       | 17.4                              | 14.7                            | 16.5            | 17.7                              | 17.1                            | 17.4            |
| Availability of career posts <sup>c</sup>             | N/A                               | 17.5                            | 17.5            | N/A                               | 16.6                            | 16.6            |
| Availability of postgrad training places <sup>c</sup> | N/A                               | 16.1                            | 16.1            | N/A                               | 15.7                            | 15.7            |
| Inclinations before medical school <sup>b</sup>       | 14.1                              | 14.8                            | 14.4            | 14.3                              | 17.0                            | 15.4            |
| Eventual financial prospects <sup>b</sup>             | 18.5                              | 14.3                            | 17.0            | 11.4*                             | 7.6*                            | 9.8*            |
| To repay student debt <sup>d</sup>                    | N/A                               | 2.8                             | 2.8             | N/A                               | 2.1                             | 2.1             |

Percentages are of all respondents. \* denotes significant difference (chi square,  $p < 0.001$ ) between the earlier and later within that gender.

<sup>a</sup>N = Men: 3302 earlier, 2720 later; Women: 4703 earlier, 5040 later; all cohorts included.

<sup>b</sup>N = Men: 3302 earlier, 1853 later; Women: 4703 earlier, 3360 later; all cohorts except 2009.

<sup>c</sup>N = Men: 0 earlier, 2720 later; Women: 0 earlier, 5040 later; 2008, 2009, 2012 cohorts only.

<sup>d</sup>N = Men: 0 earlier, 869 later; Women: 0 earlier, 1481 later; 2012 cohort only.

department' and 'Advice from others'. In each case, Asian doctors rated the factor as being more important than White doctors did ( $\chi^2$  tests,  $p < 0.001$ , Table 3), but the difference in percentage terms was small for the last two of these factors. Doctors of Black or Mixed ethnicity did not differ from White doctors for any of the factors. Doctors of Other ethnicity scored higher on 'Promotion/career prospects' than White doctors, but for all other factors they did not significantly differ from White doctors.

In Table 13 we show, for each factor, the results for the detailed ethnic groupings we have grouped as Asian and as Black.

**Age at entry to medical school.** Differences by age group were found for eight factors (Table 4), most notably, in percentage terms, for 'Inclinations before medical

school', 'Wanting a career that fits my domestic situation' and 'Enthusiasm/commitment' which were all rated by older students as more important factors affecting career choice, when compared with both of the younger age groups ( $\chi^2$  tests, all  $p < 0.001$ ).

**Specialty chosen.** For each factor, percentages scoring 'a great deal' of influence were compared across five career choice specialty groups: general practice, hospital medical (i.e. physician-led) specialties, surgical specialties, psychiatry and other hospital specialties combined. For all factors except the requirement to repay student debt ( $p = 0.02$ ), differences by specialty group were significant using  $\chi^2_4$  tests ( $p < 0.001$ , Table 5). Doctors who chose general practice were markedly more likely to rate 'Wanting a career with acceptable hours/working conditions' and 'Wanting a career that fits my domestic



**Table 3.** Ethnic group: percentages of doctors who specified each factor as influencing their choice of specialty a great deal.

| Factor affecting career choice                        | White (%) | Asian (%) | Mixed (%) | Black (%) | Other (%) | $p$ value ( $\chi^2_4$ ) |
|---|-----------|-----------|-----------|-----------|-----------|--------------------------|
| Enthusiasm/commitment <sup>a</sup>                    | 72.3      | 72.2      | 78.6      | 76.2      | 70.5      | 0.06                     |
| Experience of jobs so far <sup>b</sup>                | 51.6      | 52.9      | 53.5      | 48.1      | 55.4      | 0.39                     |
| Self-appraisal of own skills <sup>b</sup>             | 48.2      | 47.1      | 50.0      | 52.4      | 49.4      | 0.54                     |
| Student experience of subject <sup>a</sup>            | 46.1      | 46.4      | 47.1      | 48.1      | 45.3      | 0.96                     |
| Hours/working conditions <sup>a</sup>                 | 45.0      | 48.2      | 40.9      | 46.0      | 43.3      | 0.01                     |
| Domestic circumstances <sup>a</sup>                   | 31.5      | 32.0      | 31.8      | 32.8      | 22.7      | 0.01                     |
| Particular teacher/department <sup>b</sup>            | 25.9      | 31.3*     | 30.6      | 24.3      | 29.9      | <0.001                   |
| Promotion/career prospects <sup>b</sup>               | 16.5      | 27.9*     | 22.2      | 22.2      | 24.2*     | <0.001                   |
| Advice from others <sup>b</sup>                       | 16.4      | 20.2*     | 15.6      | 15.9      | 17.8      | <0.001                   |
| Availability of career posts <sup>c</sup>             | 14.6      | 26.7*     | 14.9      | 24.5      | 21.3      | <0.001                   |
| Availability of postgrad training places <sup>c</sup> | 13.8      | 24.9*     | 12.5      | 18.7      | 21.3      | <0.001                   |
| Inclinations before medical school <sup>b</sup>       | 14.7      | 15.4      | 17.4      | 23.3      | 18.2      | 0.01                     |
| Eventual financial prospects <sup>b</sup>             | 9.9       | 22.7*     | 14.9      | 14.3      | 16.6      | <0.001                   |
| To repay student debt <sup>d</sup>                    | 2.0       | 3.8       | 3.3       | 0.0       | 2.3       | 0.22                     |

Percentages are of all respondents. \* denotes significant difference (chi square with one degree of freedom,  $p < 0.001$ ) between White and Asian doctors, White and mixed doctors, White and Black doctors, or White and other ethnicity doctors. These comparisons were only made for factors where chi-square with four degrees of freedom comparing all five groups was significant with  $p < 0.001$ .

<sup>a</sup>N = 11,743 White, 2879 Asian, 359 mixed, 235 Black, 353 other, 15,569 total; all cohorts included.

<sup>b</sup>N = 9801 White, 2450 Asian, 288 mixed, 189 Black, 314 other, 13,042 total; all cohorts except 2009.

<sup>c</sup>N = 5772 White, 1305 Asian, 248 mixed, 139 Black, 141 other, 7605 total; 2008, 2009, 2012 cohorts only.

<sup>d</sup>N = 1711 White, 393 Asian, 91 mixed, 43 Black, 44 other, 2282 total; 2012 cohort only.

For numerators for each percentage, see Table 10.

situation' as important than were doctors who chose the other specialty groups ( $\chi^2 p < 0.001$ ). 'Availability of postgraduate training places' and 'Availability of career posts' were more influential factors for those who chose general practice or psychiatry than for those who chose other specialties.

### Multivariable modelling

In Table 14, we show the significant terms in the final model for each factor after multivariable modelling (see Method).

Intending GPs rated 'Working hours and conditions' (odds ratio 11.1) and 'Domestic circumstances' (odds ratio 6.0) as more important than intending surgical specialty doctors did; intending GPs also rated these factors as more important than doctors in all other specialties (odds ratios ranged from 3.4 to 1.1). Intending GPs rated the 'Availability of career posts' as more important than doctors intending to

work in the medical specialties, surgical specialties or other hospital specialties. Intending specialists, other than GPs, rated 'A particular teacher or department' as more important in influencing their specialty choice than intending GPs (odds ratios ranged from 2.2 to 4.1).

Doctors in the 2008–2012 cohort group were more likely than doctors in the 1999–2002 cohort group to state that 'Domestic circumstances' were an important factor when choosing their career (odds ratio 5.4). The 2008–2012 cohort group were also more likely to state that 'Enthusiasm/commitment' and 'Working hours and conditions' were important influences, compared with doctors in the 1999–2002 cohort group (odds ratios 1.6 and 1.5, respectively).

Female doctors were more likely than male doctors to state that 'Domestic circumstances' were important compared with male doctors (odds ratio 1.5) and were also more likely to state that

**Table 4.** Age at entry to medical school: percentages of doctors who specified each factor as influencing their choice of specialty a great deal.

| Factor affecting career choice                        | Percentages   |                 |               | p value ( $\chi^2$ ) |
|---|---------------|-----------------|---------------|----------------------|
|   | <21 years (%) | 21–30 years (%) | >30 years (%) |                      |
| Enthusiasm/commitment <sup>a</sup>                    | 71.2          | 77.3*           | 81.1*         | <0.001               |
| Experience of jobs so far <sup>b</sup>                | 52.6          | 47.1*           | 45.4          | <0.001               |
| Self-appraisal of own skills <sup>b</sup>             | 46.9          | 53.2*           | 56.3          | <0.001               |
| Student experience of subject <sup>a</sup>            | 46.2          | 44.7            | 46.5          | 0.40                 |
| Hours/working conditions <sup>a</sup>                 | 44.5          | 50.0*           | 45.8          | <0.001               |
| Domestic circumstances <sup>a</sup>                   | 29.4          | 41.1*           | 40.7*         | <0.001               |
| Particular teacher/department <sup>b</sup>            | 27.8          | 23.8*           | 18.0          | <0.001               |
| Promotion/career prospects <sup>b</sup>               | 19.1          | 19.1            | 18.6          | 0.98                 |
| Advice from others <sup>b</sup>                       | 17.5          | 15.4            | 8.2           | <0.001               |
| Availability of career posts <sup>c</sup>             | 16.6          | 17.8            | 18.9          | 0.44                 |
| Availability of postgrad training places <sup>c</sup> | 15.6          | 16.2            | 17.2          | 0.71                 |
| Inclinations before medical school <sup>b</sup>       | 13.3          | 23.3*           | 41.0*         | <0.001               |
| Eventual financial prospects <sup>b</sup>             | 12.8          | 11.8            | 8.2           | 0.06                 |
| To repay student debt <sup>d</sup>                    | 1.8           | 3.8             | 7.1           | 0.07                 |

Percentages are of all respondents. \* denotes significant difference (chi square,  $p < 0.001$ ) between <21 and 21–30 year old doctors, or <21 and >30 year old doctors. These comparisons were only made for factors where chi-square with two degrees of freedom comparing all three groups was significant with  $p < 0.001$ . For numerators for each percentage, see Table 11.

<sup>a</sup>N = 13,141 < 20 years, 2348 21–30 years, 275 > 30 years, 15,764 total; all cohorts included.

<sup>b</sup>N = 11,225 < 20 years, 1810 21–30 years, 183 > 30 years, 13,218 total; all cohorts except 2009.

<sup>c</sup>N = 5933 < 20 years, 1588 21–30 years, 238 > 30 years, 7759 total; 2008, 2009, 2012 cohorts only.

<sup>d</sup>N = 1838 < 20 years, 470 21–30 years, 42 > 30 years, 2350 total; 2012 cohort only.

‘Wanting a career with acceptable hours/working conditions’ was an important factor (odds ratio 1.4).

Asian doctors were more likely than White doctors to state that ‘Eventual financial prospects’, ‘Availability of career posts’, ‘Availability of postgraduate training places’ and ‘Promotion/career prospects’ were important factors (odds ratios 2.6, 2.4, 2.3 and 1.9, respectively).

Doctors whose age at entry to medical school was above 30 years were significantly more likely to place high importance upon ‘Inclinations before medical school’ compared with doctors who were under 21 (odds ratio 4.5).

For four factors only – domestic circumstances, hours and working conditions, enthusiasm/commitment, and experience of jobs so far – we found a significant interaction between cohort group and the specialty chosen. In other words, the variation by specialty in the strength of these factors was different among the earlier cohorts than

among more recent graduates. For these four factors, the age, gender and ethnicity effects did not vary with the cohort group. For all other factors, there were no differences in the effect of gender, ethnicity, age or specialty by cohort group. Table 15 shows the variation in the percentage ascribing a great deal of influence on career choice, by cohort group and specialty group chosen, for each of these four factors.

Comparing later cohorts with earlier, for doctors who chose general practice or psychiatry, the importance of domestic circumstances increased much more than it did for doctors who chose other specialties. In the more recent cohorts, doctors who chose psychiatry gave more weight to hours and working conditions, and doctors who chose the hospital-based specialties (medicine, surgery and other hospital specialties) gave more weight to the importance of enthusiasm and commitment. The experience of jobs

**Table 5.** Specialty group: percentages of doctors who specified each factor as influencing their choice of long-term career a great deal.

| Factor affecting career choice                        | First choice of career |                         |                          |                |                    | Total (%) |
|---|------------------------|-------------------------|--------------------------|----------------|--------------------|-----------|
|   | General practice (%)   | Medical specialties (%) | Surgical specialties (%) | Psychiatry (%) | Other hospital (%) |           |
| Enthusiasm/commitment <sup>a</sup>                    | 77.5                   | 74.9                    | 72.4                     | 72.1           | 78.6               | 76.0      |
| Experience of jobs so far <sup>b</sup>                | 38.3                   | 51.8                    | 51.6                     | 34.6           | 39.1               | 43.9      |
| Self-appraisal of own skills <sup>b</sup>             | 40.6                   | 39.4                    | 41.6                     | 53.8           | 39.4               | 40.6      |
| Student experience of subject <sup>a</sup>            | 48.5                   | 45.9                    | 46.0                     | 55.9           | 53.0               | 49.1      |
| Hours/working conditions <sup>a</sup>                 | 93.9                   | 39.3                    | 19.4                     | 50.9           | 35.1               | 46.7      |
| Domestic circumstances <sup>a</sup>                   | 69.9                   | 26.5                    | 11.6                     | 28.1           | 23.7               | 32.5      |
| Particular teacher/department <sup>b</sup>            | 11.3                   | 29.1                    | 34.0                     | 21.4           | 22.8               | 23.3      |
| Promotion/career prospects <sup>b</sup>               | 13.0                   | 15.5                    | 22.8                     | 21.5           | 14.5               | 16.1      |
| Advice from others <sup>b</sup>                       | 15.5                   | 13.1                    | 16.1                     | 9.2            | 14.5               | 14.5      |
| Availability of career posts <sup>c</sup>             | 27.4                   | 14.2                    | 10.6                     | 25.1           | 12.7               | 16.9      |
| Availability of postgrad training places <sup>c</sup> | 25.6                   | 14.3                    | 9.4                      | 25.1           | 11.4               | 15.9      |
| Inclinations before medical school <sup>b</sup>       | 14.2                   | 7.8                     | 15.9                     | 20.6           | 12.5               | 12.8      |
| Eventual financial prospects <sup>b</sup>             | 13.3                   | 8.1                     | 17.1                     | 6.3            | 6.5                | 10.5      |
| To repay student debt <sup>d</sup>                    | 4.1                    | 1.8                     | 2.1                      | 2.7            | 1.4                | 2.3       |

Percentages are of all respondents. For numerators for each percentage, see Table 12.

<sup>a</sup>N = 3289 general practice, 3137 medical specialties, 3033 surgical specialties, 605 psychiatry, 4415 other hospital, 14,479 total; all cohorts included.

<sup>b</sup>N = 3830 general practice, 3435 medical specialties, 2738 surgical specialties, 543 psychiatry, 4510 other hospital, 15,056 total; all cohorts except 2009.

<sup>c</sup>N = 1909 general practice, 1581 medical specialties, 1137 surgical specialties, 251 psychiatry, 2486 other hospital, 7364 total; 2008, 2009, 2012 cohorts only.

<sup>d</sup>N = 582 general practice, 488 medical specialties, 340 surgical specialties, 73 psychiatry, 736 other hospital, 2219 total; 2012 cohort only.

undertaken so far was less important for aspiring GPs in the later than in the earlier cohorts.

## Discussion

### Main findings

Enthusiasm/commitment to the job was the most important factor, in all cohorts, when choosing a specialty. Other important factors were experience of jobs so far, self-appraisal, hours and working conditions and experience of the subject as a student.

Domestic circumstances were a much more important consideration when choosing a specialty for the graduates of 2008–2012 compared with those of 1999–2002. Across the cohorts, female doctors rated domestic circumstances as having greater importance than male doctors, but its sharp increase in importance over the years was observed in both

men and women. In particular, this factor rose sharply in importance in the later cohorts compared with the earlier cohorts. The importance of acceptable hours and working conditions was higher among female doctors than male doctors. The importance of the availability of postgraduate training places and availability of career posts increased between 2009 and 2013.

Career-opportunity factors such as financial prospects and the availability of career posts and training places were more important to Asian doctors than to White doctors. Doctors who had started medical school aged over 30 years rated inclinations before medical school as a more important influence on their specialty choice than younger entrants did.

Working hours and conditions, and their own domestic circumstances, were more important to intending GPs and psychiatrists than to doctors wanting to practise in other specialties.



### Strengths and limitations

A key strength of this study is that it covers several cohorts over many years (from 1999 to 2012), all surveyed at the same stage in their careers. The study covers all UK medical graduates and response rates were generally good, although the response rates among the three later surveys were between 46% and 49%, compared with 65% to 69% among the earlier surveys. We cannot account for this difference in response rates: there was no fundamental difference in methodology, except that in recent surveys we offered the choice of email and online questionnaires as well as postal hard-copy. We think that the difference is generational and related to a disinclination to participate in surveys among more recent graduates: we have recently surveyed the medical qualifiers of 1974 and 1977 and achieved a response rate of about 90%. As with all surveys, non-responder bias is possible. We were able to present a wide range of factors to medical graduates and to consider these alongside demographic characteristics, rather than focussing upon a narrow range of factors or characteristics.<sup>10</sup> Doctors' responses were contemporaneous and there cannot be any recall bias.

### Comparison with existing literature

The importance of enthusiasm and self-appraisal of skills were, as in the current study, reported elsewhere as being important factors in doctors' career choices.<sup>3,9</sup> The minor importance of domestic circumstances, in the past, has been documented in studies up to 2004 (as reviewed by Soethout), but, as we have found in this study and in our other research,<sup>9</sup> domestic circumstances are now a very important factor in decision-making for a substantial proportion of women and men. Other research has found that female doctors consider factors such as 'work and time-related aspects', 'appraisal of domestic circumstances' and 'flexibility of working arrangements' to be more important than men do.<sup>4,17</sup>

Our finding that the availability of training places and career posts was more important to the 2012 cohort than to doctors who graduated in 2008 could be viewed as a consequence of the current economic climate. In Spain, a study of final year medical students in 2011 found that 'job availability' had the largest impact on choice of specialty.<sup>18</sup> It is also possible that UK graduates are responding to the fact that half of 6500 specialty training posts are likely to be in general practice.<sup>19</sup>

We found that intending GPs (especially those in the more recent cohorts) placed greater importance on domestic circumstances and working hours and conditions than other doctors. This echoes other research

which has found that intending GPs choose general practice for its variety, continuity of care and work-life balance<sup>13</sup> or for its 'variety and time for own family'.<sup>20</sup> We did not include a question on variety.

### Conclusion

Alongside a sustained high regard for the work itself, and self-appraisal of their own suitability for a particular medical career, young doctors, both men and women, increasingly regard factors related to their personal circumstances as important when considering their specialty choices. Further research should focus, in greater depth than we have, on the differing motivations of older and younger generations of doctors, men and women, ethnic minority and White doctors, doctors who start medical school relatively late and motivating factors for different specialties.

### Declarations

**Competing interests:** All authors have completed the Unified Competing Interest form at [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) (available on request from the corresponding author) and all authors want to declare: (1) financial support for the submitted work from the policy research programme, Department of Health. All authors also declare: (2) no financial relationships with commercial entities that might have an interest in the submitted work; (3) no spouses, partners, or children with relationships with commercial entities that might have an interest in the submitted work; (4) no non-financial interests that may be relevant to the submitted work.

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**Guarantor:** All authors are guarantors.

**Contributorship:** TL and MJG designed and conducted the surveys. FS performed the analysis and wrote the first draft of the paper. All authors contributed to further drafts and all approved the final version.

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