Factors Associated with the Nature, Timing and Stability of the Specialty Career Choices of Recently Graduated Doctors in European Countries, a Literature Review

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Abstract: The aim of this study was to identify factors that are associated with the choice of a specialty, the moment of the definitive choice, and the stability of the choice over time. The focus was on recently graduated doctors in European countries. A review of the literature from October 1994 to October 2004 was conducted.

Most of the identified studies were of good quality. Enthusiasm, self-appraisal of skills, human interest and domestic circumstances were the main factors associated with the choice for medical specialization. Female doctors paid a great deal of attention to reasonable working hours and part-time jobs. They were also less certain about their career choice, and made this choice later than men.

Most doctors with a preference for general practice at the time of qualification as a medical doctor achieved their aim. Women, who preferred a clinical specialization, had less opportunity than men to achieve their career satisfactorily.

Key Words: Medical graduate, medical specialty, career choice, career preference

Helping people, interest in science, and the intellectual challenge of the profession have reported to be important motives underlying the wish to study medicine.1,2,3 The main factors associated with the choice of a medical specialty are role models, internship experience and electives4,5,6, but personal circumstances and gender also play a role;7,8 These factors are changing in the last decades.9 At the same time doctors are working less hours and there is a changing gender distribution amongst young doctors with more female students entering medical schools.10,11

Most doctors practise in their native country, but some decide to work abroad. In European Community (EC) countries there is a free movement of trade and people, and medical doctors with a degree in one EC country have the right to practise in other EC countries12. Given the growing number of participant countries in the European Community, the tendency to work abroad may increase in the future.

Insight into the reasons underlying the choice of medical careers in Europe may lead to better continuity in medical career-planning, as better matches of preference and actual specialty may prevent the early termination of a medical career. These insights could pave the way to providing better information and counselling for medical students and young doctors guiding them towards careers that serve both their aspirations and those of society. A review of the literature was conducted to identify factors that are associated with (a) the choice of specialty, (b) the timing, i.e. the moment of the definitive choice, and (c) the stability of the choice over time. The focus was on recently graduated doctors in European countries.

Method

An on-line search in Medline was carried out for the period 1st October 1994 to 1st October 2004. Titles and abstracts were screened with the following keywords: ‘specialization career choice’, ‘medical career choice’, ‘physician career choice’, ‘specialization career preference’, ‘physician career preference’, ‘medical career preference’, ‘medical career’, ‘physician career’ and ‘specialist career’. Only articles with abstracts in English were selected. Abstracts with the keywords ‘dental’, ‘nurse’, ‘nursing’ and abstracts of non-European studies were excluded. A total of 38 abstracts were assessed for the purpose of the study. Studies dealing with students before graduation as a medical doctor and studies concerning doctors at the
end of their medical career were excluded. Finally, a total of 20 articles were selected for further investigation, and the reference lists of the studies were screened for additional relevant articles. This procedure resulted in a total of 25 articles for the analysis of factors that are possibly associated with the choice, timing and stability of a medical specialist career in Europe.

The quality of the included studies was assessed according to a methodology assessment list, based on an instrument, which have previously been used successfully. It contains seven categories of criteria: (a) study purpose, (b) study design, (c) response rate, (d) kind of survey (national, regional or local study), (e) number of investigated factors (actual medical career and associated factors), (f) career or profession and (g) statistical analysis. A study could score 1, 2 or 3 points for every criterion that it met, and for each study a total quality score was calculated (maximum score of 17 points). Two reviewers (MS and GvdW) scored all studies independently. The scores were compared, and the few minor differences that were found could be resolved in a discussion between the two reviewers, so a consensus meeting (MS, GvdW, ThTC) was not necessary. In describing the career choice, general practice and hospital specialities were distinguished as main fields of medical specialization. Specific hospital specialities or fields of other specialization (such as public health or community medicine) were only mentioned when relevant. The results are presented in percentages. Differences in percentages are presented when they are statistically significant (p<0.05).

Results

Quality of studies identified - No randomised controlled trials or meta-analyses of studies concerning factors associated with postgraduate medical career choice were identified. Almost all of the studies dealt with recently qualified doctors, and all studies were surveys. In most cases a comparison was made between the choice of specialty at the time of qualification and/or actual profession and the factors that were associated with this choice. Most (fifteen) studies had been carried out in the United Kingdom, four in Norway, three in the Netherlands, one in Germany, two in Finland and one in Italy. One article was written in German, one in Norwegian and the rest in English. A Norwegian medical student who was studying medicine in the Netherlands translated the Norwegian article.

All the included studies clearly described the purpose and the study design and almost all studies were national studies. There was one local German study and one local Dutch study, and one regional Italian study. The response rate in most studies was over 70%. The German, Italian and Norwegian studies and most of the Dutch, Finnish and British studies investigated more than two factors associated with the choice of medical specialty. Choices of medical career and/or actual profession were described in most studies.

Five British, one Dutch and four Norwegian studies which included one or more cohorts of qualified medical doctors in which more than one factor was studied, could be rated as qualitatively very good studies, with a score of 16 to 17 points. Two British, one Finnish, one Italian and one Dutch study scored 14 to 15 points. These studies investigated fewer factors associated with the choice of medical career. The other seven British studies, one Finnish, one Dutch and one German study gave only a limited description of the factors associated with the choice of medical career, or gave an inadequate description of the choice of medical career or actual profession (Table 1).

Factors associated with career choice - More than 60% of recently qualified doctors from medical school had a preference for a hospital specialty. This percentage was higher for men than for women. Male doctors chose more different specialities than women, and mainly opted for surgery and internal medicine. Female doctors mainly opted for obstetrics, gynaecology and pediatrics. Of the 25 articles, 16 could be analysed on the outcome measures related to factors that are associated with the career choice. Table 2 presents the factors associated with the career choice, classified as personal factors and factors related to prior experiences and expected job characteristics. Human interest (72%), enthusiasm (62-68%) and self-appraisal related to expected tasks (52-68%) were identified as the main personal characteristics associated with career choice. The range of percentages for these factors was mainly related to gender differences and the choice of a specific medical specialty. Domestic circumstances (18-40%) had only a minor association. They were more important for women than for men and also more important for doctors who chose general practice than for doctors who chose hospital specialities. Age at entry into medical school in Britain was not a predictor of choice for any specific specialty. Graduates were slightly more likely than non-graduates to choose general practice at the time of entry into medical school.
working conditions (41-48%), working hours (44-47%), career and promotion aspects (27-58%) and financial prospects (12-49%) were the main job characteristics associated with the career choice. Career aspects were found to be more important for men than for women.\(^{14,35}\) Workload was a more important reason for women than for men to reject an alternative career.\(^{29}\) Working experience in health care (45-55%) and clinical experience as a student (21-45%) were the main prior experience factors associated with medical career choice.

**Timing and stability of career choice** - In the Netherlands, men decided earlier than women about their choice of a medical career; 13% of the men took their first choice of career one year after qualification, and 55% a year after graduation. The medical specialty and promotion aspects were found to be more important for men than for women.\(^{14}\) A Norwegian study showed that most doctors who started their practical career in general practice or community medicine specialised in these disciplines (women 53%, men 58%). General practice was also the most important alternative for those who started in another specialty, and the majority of women and men who became a hospital specialist had wanted to do so from the start of their career.\(^{20}\)

Follow-up studies concerning the medical career choice and the certainty of this choice have only been carried out in the United Kingdom. Table 3 shows that three years after qualification from medical school, 74% of British doctors had retained the career choice they made one year after qualification. The surgical specialties, general practice and paediatrics showed the greatest stability of choice with more than 80%.\(^{31}\) The percentage of doctors who changed their choice from a hospital specialty to general practice, between one and three years after qualification, fell from 20% in 1974 to 9% in 1993, and the percentage who considered and rejected general practice was small, compared to the percentage who chose general practice.\(^{18,31}\) Eleven years after qualification, 65% were still employed in the specialty choice they chose one year after qualification (68% men, 61% women). General practice showed the highest stability (80%), followed by psychiatry (78%), anaesthetics (74%), surgical specialties (64%) and pathology (64%).\(^{34}\) Community health and public health medicine, showed with 30% the lowest stability (not in table). Eighteen years after qualification, 59% of British doctors stated that their current specialty was their first choice of career one year after qualification.\(^{22}\)

Different studies showed that men were more successful in achieving their chosen hospital specialization than women.\(^{20,34}\) A Norwegian study showed that the longer the time spent in a specialty from the start of a career, the greater the chance of actually specialising in that specialty, regardless of gender. The probability of a job in surgery leading to a new job in the same specialty was lower for women than for men. The opposite was true for the specialities of general practice and psychiatry. Doctors who started their career in general practice or community medicine had the greatest degree of continuity between their first or second job and actual specialization.\(^{20}\)

One year after qualification, 31% of British doctors stated that their specific choice of a future long-term career was definite, but women were less definite than men (26% vs. 35%). Recent British research viewed that 77% of men and 71% of women stated their career choice as definite or probable one year after graduation from medical school.\(^{17}\) Those who chose general practice were more definite about their choice than those opting for clinical specialities, and men appeared to be more certain about their hospital choice than women.\(^{15,31}\)

**Discussion**

A great deal of research has been carried out, especially in the United Kingdom, into factors that are possibly associated with the choice for medical specialization, but also in Norway, the Netherlands and Finland national studies have been carried out in this field. Some studies will certainly have been missed, because the abstract was not in English, but these will only be a few less relevant studies, because most journals accept only articles with an abstract in English. The quantitative analysis of the included articles shows that many were of sufficient quality. Most studies were cohort studies, and investigated different factors associated with the choice of a medical career, with cohorts form different periods of time. The actual career should therefore be interpreted in relation to the time of the study, because medical careers have changed during recent decades, not only due to the growing number of female doctors, but also because of economic or societal changes.

The quantitative assessment shows that many factors are associated with the choice of a medical career. These factors were not described in detail in most studies, so the results of combining factors, which seem to be the same in these different studies, should be interpreted with caution. The percentages shown in Table 2 were mostly reported in British studies which all used the same description of factors. Most of the factors described in other studies were shown as remarks.
Personal characteristics (enthusiasm for specialty, self-appraisal of own skills and aptitudes, and human interest) are important in the choice of medical specialization, but domestic circumstances are also associated with the career choice, especially for women. Different studies show that having and raising children has a negative influence on becoming a hospital specialist.28,34 A reason for this might be that female doctors have less support from their partners in this respect than male doctors.35

Men decide earlier and are more definite about their career choice than women, probably because women must also decide about a career in motherhood. This dualism in career choice for women might also be a reason why female doctors postpone their firstborn and have less children, compared to women in the general population, because combining a medical career and motherhood is difficult.9,20,21,23,33 Therefore in view of the increasing majority of female medical students, it will be necessary to pay considerable attention to part-time facilities for medical specialization, adequate provisions for parental leave and good day-care for children.

Various British studies have reported that one year after qualification more than 60% of medical doctors were employed in the career that was their first choice at the time of graduation from medical school, and that 80% were working in the career of their choice three years after their qualification from medical school.22,31,34 So, it takes at least three years before most doctors have finally achieved the career of their choice.

As a career, general practice is a stable choice, and the majority of qualified medical doctors with a preference for general practice also achieve their aim.20,29,34 The field of general practice is probably more compatible with family life than a hospital specialty. This might explain why especially those female doctors whose first choice is general practice will achieve their aim, and why married doctors, especially women, have a greater preference for general practice.

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Appendix

Table 1. Quality scores of studies included in this review.

| Reference | Sample size | Response rate % | Purpose | Design | Response | Survey | Number of Factors | Career | Analysis | Total Score |
|-----------|-------------|-----------------|---------|--------|----------|--------|-------------------|--------|----------|-------------|
| 1. Du Moulin, 2000, The Netherlands | N= 600 | 82 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 17 |
| 2. Lambert, 1996, UK | N= 3657 | 72 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 16 |
| 3. Lambert, 1996, UK | N= 3819 | 73 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 16 |
| 4. Goldacre, 2004, UK | N= 8494 | 67 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 16 |
| 5. Lambert, 2003 (ME), UK | N= 5653 | 71 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 16 |
| 6. Gjerberg, 2003, Norway | N= 1719 | 67 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 16 |
| 7. Gjerberg, 2002, Norway | N= 1719 | 67 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 16 |
| 8. Gjerberg, 2001, Norway | N= 1719 | 67 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 16 |
| 9. Davidson, 1998, UK | N= 5069 | 78 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 16 |
| 10. Gjerberg, 1995, Norway | N= 9266 | 72 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 16 |
| 11. Galeazzi, 2003, Italy | N= 97 | 49 | 2 | 2 | 1 | 2 | 3 | 2 | 2 | 14 |
| 12. Lambert, 2001, UK | N= 7466 | 74 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 14 |
| 13. Heiliger, 2000, The Netherlands | N= 1687 | 68 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 14 |
| 14. Neittaamaki, 1999, Finland | N= 4671 | 78 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 14 |
| 15. Lambert, 1998 (ME), UK | N= 20164 | 80 | 2 | 2 | 2 | 3 | 3 | 1 | 2 | 14 |
| 16. Lambert, 2003 (BMJ), UK | N= 8494 | 67 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 13 |
| 17. Lambert, 2002, UK | N= 3639 | 75 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 13 |
| 18. Goldacre, 2000, UK | N= 3651 | 76 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 13 |
| 19. Goldacre, 1999, UK | N= 3809 | 77 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 13 |
| 20. Lambert, 1998 (BMJ), UK | N= 3713 | 78 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 13 |
| 21. Edwards, 1997, UK | N= 2235 | 58 | 2 | 2 | 2 | 3 | 0 | 2 | 2 | 13 |
| 22. Cohen-Schotanus, 2002, The Netherlands | N= 333 | 72 | 2 | 0 | 2 | 1 | 3 | 2 | 2 | 12 |
| 23. Abele, 2002, Germany | N= 311 | 50 | 2 | 2 | 1 | 1 | 3 | 0 | 2 | 11 |
| 24. Virtanen, 2001, Finland | N= 638 | 74 | 2 | 2 | 3 | 3 | 0 | 0 | 2 | 9 |
| 25. McManus, 2000, UK | N= 600 | 78 | 2 | 2 | 2 | 3 | 3 | 0 | 2 | 7 |

Notes:
A: Study purpose
2 points if a specific purpose was clearly described.

B: Study design
2 points if the study design was clearly described.

C: Response rate
3 points if the response rate was at least 80% or the response rate of the study was between 65% and 80% and a non-response survey was carried out.
2 points if the response rate was between 65% and 80% or the response rate was between 50% and 65% and a non-response survey was carried out.
1 point if the response rate was between 50% and 65%.

D: Kind of survey
3 points if data were collected from a national survey.
2 points if data were collected from a regional survey.
1 point if data were collected from a local survey.

E: Number of investigated factors
3 points if more than 2 factors associated with the choice of medical career were investigated.
2 points if 2 factors associated with the choice of medical career were investigated.
1 point if 1 factor associated with the choice of medical career was investigated.

F: Career or profession
2 points if actual medical career or profession was investigated.

G: Statistical analysis
2 points if a statistical analysis was performed for the outcome.
Table 2. Factors associated with the postgraduate medical career choice derived from studies included in this review.

| Factor                        | Studies of table 1 that report on this factor | Important factor for specialty choice in percentages | Remarks                                                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| **Personal characteristics**  |                                               |                                                      |                                                                                                                                                                                                         |
| Enthusiasm                    | 2, 9                                          | 62-68                                                |                                                                                                                                                                                                         |
| Self-appraisal related to expected tasks | 2, 3, 9                                      | 52-68                                                |                                                                                                                                                                                                         |
| Domestic circumstances       | 1, 2, 3, 6, 7, 8, 9, 10, 13, 23               | 18-40                                                | More women than men found it difficult to combine work and home. Female specialists married later and had their firstborn later than women in the general population.                                           |
| Graduate status              | 12                                            |                                                      | More graduate than non-graduate entrants chose general practice. Greater preference for general practice if graduation was longer ago. More important factor for women than men.                           |
| Age                          | 6, 7, 15, 12, 20                              |                                                      | Age at entry into medical school was not a significant predictor of career choice for any specialty.                                                                                                        |
| Life long calling            | 14                                            | 35                                                   | More important for women than for men.                                                                                                                                                                  |
| Human interest               | 14, 20                                        | 72                                                   | More important for women than for men.                                                                                                                                                                  |
| **Expected job characteristics** |                                             |                                                      |                                                                                                                                                                                                         |
| Working conditions           | 1, 2, 3, 5, 6, 9, 10, 13, 41-48               |                                                      | Favourable working hours, relatively few shifts and intensive contact with patients were more important for women. Female doctors working full-time were more often single and childless than female doctors working part-time. Most men working part-time were supported by a partner. Female doctors working part-time were less of men supported by a partner. More men than women preferred a full-time job. Doctors working part-time preferred to have a part-time job. The dominant part time preference for men started with a fulltime position and changed to part-time work after five years. |
| Working hours                | 1, 2, 3, 6, 22, 23                            | 44-47                                                | Fulltime female doctors were more often single, had fewer children and more often had a partner working fulltime, compared to fulltime male doctors. Few women with children worked fulltime but most men did. Part-time work was more important for women than for men. |
| Career and promotion prospects | 1, 2, 3, 5, 14, 22, 23                        | 27-58                                                | Career was more important for men than for women. Important for rejecting an alternative career choice.                                                                                               |
Factors associated with the nature, timing and stability of the specialty career choices of recently graduated doctors in European countries.

Particular hospital teacher or department 2, 3, 4 18-27

Financial prospects 1, 2, 5 12-49 More important for men than for women.

Job content 5, 20 40 More important for men than for women

Important reasons for rejection of specialty: general practice: lack of enjoyment of job content (unchanging nature of the work); paediatrics: quality of life; psychiatry: lack of enjoyment of job content.

Prior experiences
Working experience in health care 2, 3, 7, 9 45-55 The longer the time spent in a specialty at the start of a career, the greater the chance of actually specialising in that specialty.

Clinical experiences as a student 2, 3, 4 21-45

Experiences during an intercalated year 12 Non-graduates with an intercalated degree were less likely to choose general practice and more likely to choose hospital specialities than those with no intercalated degree (even after three years of follow-up).

Inclination before medical school 4 14

Table 3. Percentage of British medical doctors, 3-18 years after qualification working in the specialty as mentioned as their choice of career one year after qualification from medical school

| Specialty: | Goldacre, 2000<sup>31</sup> | Edwards, 1997<sup>34</sup> | Davidson, 1998<sup>22</sup> |
|---|---|---|---|
| Years after qualification | 3 | 11 | 18 |
| Overall | 74 | 65 | 59 |
| General practice | 88 | 80 | 61 |
| Paediatrics | 83 | 48 | 63 |
| Surgical specialities | 82 | 64 | 84 |
| Anaesthetics | 79 | 74 | 50 |
| Psychiatry | 79 | 78 | 46 |
| Obstetrics and gynaecology | 68 | 54 | 62 |
| Pathology | 57 | 64 | 51 |