

## Residents' reasons for specialty choice: influence of gender, time, patient and career

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**OBJECTIVE** This study examined reasons for specialty choice among Swiss residents (post graduate doctors training in specialties).

**METHODS** In 2006, a questionnaire was sent to 8626 Swiss residents registered in postgraduate medical training programmes to obtain specialist qualifications. The response rate was 65% ( $n = 5631$ ). As residents are allowed to decide on the specialty they want to acquire later in the training process, only residents who had already chosen a specific specialty were included ( $n = 5038$ ). In responding, residents rated the importance of 19 factors in making their choice of specialty. Categorical principal component analysis was conducted to obtain underlying dimensions within the reasons for choice. A two-way analysis of variance was performed for each dimension to compare the mean object scores for the 10 specialties chosen by the most residents and to examine possible interactions by gender and year of graduation. Contrasts between the specialties were analysed with Scheffe post hoc tests.

**RESULTS** Categorical principal component analyses yielded three factors underlying residents' choice of specialty, which explained 40.8% of the variance in responses: *work and time-related aspects*; *career-related aspects*, and *patient orientation*. Women considered *work and time-related aspects* and *patient orientation* to be more important factors in their choice, and *career-related aspects* to be less important, than did men. *Career-related aspects* became less important with advancing training status.

**CONCLUSIONS** This study showed that reasons for specialty choice differ according to gender, year of graduation and specialty. With progressing training status, gender differences in reasons for choice and specialty choice may become more pronounced, especially regarding career aspects, which may lead to a change in preferred specialty. Therefore, a modular constructed postgraduate training programme might give residents the flexibility to change from one specialty to another.

*Medical Education* 2010; **44**: 595–602

doi:10.1111/j.1365-2923.2010.03631.x

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 INTRODUCTION

The career choices of young doctors after graduation are important to the maintenance of an adequate supply of medical workforce and the future provision of health care to the population. Because some specialties, such as psychiatry and family or general medicine, are chosen less often, and interest in these specialties appears to be decreasing, it may be useful to examine the reasons behind the choice of specialty.<sup>1,2</sup>

Studies examining influences on career planning have found that gender differences exist. Women tend to prefer fields with intensive patient contact, whereas men tend to prefer instrument-oriented and high-technology medicine.<sup>3,4</sup> Women make up an increasing percentage of the medical workforce, representing almost 50% of it in Switzerland,<sup>5</sup> but they tend to work fewer hours per week and have part-time jobs more often than men do.<sup>6,7</sup> Therefore, working hours as a factor in career choice has become more important as women wish to balance work and family responsibilities.<sup>8</sup> However, working hours are now coming to represent a more important factor for men too.<sup>9,10</sup>

Differences in specialty choice are not solely related to gender and working hours, and motives for specialty choice may differ according to specialty. Several studies have found, for instance, that important motives for a career in family or general medicine relate to: 'independence'; 'a broad spectrum of patients and diseases'; 'long-term care'; 'variety of medical practice'; 'the doctor-patient relationship', and career motivation.<sup>4,11,12</sup> Compared with other specialists, family doctors rate career motivation and success lower and are more oriented to part-time work.<sup>13</sup> Intellectual challenge, commitment to patient care and role models were found to be of greater concern in internal medicine than other specialties.<sup>14</sup> Doctors rejecting the hospital-based and surgical specialties or paediatrics were most likely to specify reasons related to quality of life, such as working hours and working conditions.<sup>15</sup> The motives behind specialty choice are complicated, but career-related aspects and intellectual challenge, personal lifestyle factors, relationships with patients and working hours seem to be important.<sup>16-18</sup>

Several studies have suggested that students know at an early stage of their residency or medical school training which specialty they want to focus on.<sup>19,20</sup>

However, a longitudinal study showed that the total number of residents choosing some specific specialties declines over the years.<sup>4</sup> In accordance with this, Goldacre *et al.*<sup>21</sup> found that a higher percentage of doctors who choose hospital-based specialties are uncertain about their specialty choice in the early years after qualification compared with doctors who choose other specialties. Several factors related to working hours and career-related aspects seem to change with advancing seniority.<sup>17</sup> Therefore, it may be that the importance of various reasons for choice changes during residency.

Knowledge about important and changing motives for choosing different specialties could be used to help recruit students for the low-status specialties and to improve the job satisfaction of doctors. Studies that try to integrate reasons for choice, gender and year of graduation and compare various specialties are currently lacking in number. Therefore, the objective of this study was to examine the differences in reasons for specialty choice between the 10 main medical specialties and by year of graduation among residents in Switzerland.

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 METHODS

The Swiss Medical Association evaluates the quality of Swiss resident training programmes with a yearly survey.<sup>22,23</sup> Every year, post graduate doctors training in specialties (residents) answer questions related to the training programme and working conditions. In the 2006 survey, questions related to specialty choice were included in the annual survey. No ethical approval was required for this study and it was carried out in accordance with the Declaration of Helsinki. The anonymity of participants was guaranteed.

Federal law regulates the structure and duration of the 43 specialist postgraduate training programmes in Switzerland. The residency programmes last 5 or 6 years and some of them comprise two parts: a specialty-specific programme and training outside the specialty. In the Swiss health care system, primary medical care (family medicine) is mainly delivered by specialists in general medicine (which requires 5 years of postgraduate training, mainly in internal medicine and other specialties at hospitals, and only a few months of training in ambulatory practices) and internal medicine (which requires 5 years of postgraduate training in internal medicine, mainly in hospitals). There are only a very small number of training posts for general medicine.

In the Swiss system it is not obligatory for residents to decide on a specialty before commencing training; they are allowed to decide later in the training process or to change their decision. However, changing specialty may mean that the resident has to extend his or her postgraduate training to fulfil requirements. Therefore, our questionnaire asked medical residents if they were participating in a residency for their chosen specialty, in a residency programme outside their chosen specialty, or if they had not yet decided on a specialty. The option 'not yet decided' was included as these residents were not expected to be able to answer the question about the kind of specialty they wanted to enter. The 10 specialties that were most often chosen by the residents (surgery, orthopaedic surgery, anaesthesiology, general medicine, internal medicine, paediatrics, gynaecology, child psychiatry, psychiatry and radiology) were selected, and the other 33 specialties were categorised as 'other'.

### Measurement of reasons for specialty choice

The items for reasons behind the choice of specialty were informed by the existing literature<sup>11,24</sup> and an advisory board comprised of medical specialists. Once the first version of the questionnaire had been created, the items were discussed and changed by the advisory board. The second version of the questionnaire was pre-tested in three groups of residents (neurology, psychiatry and a group of mixed specialties) at three different institutions. The questions were discussed and several changes were made to the wording of the questions and the answer scales.

Study participants were asked to respond to the following item: 'Someday you will hold a specialty title; please indicate what were/are the reasons for your specialty choice.' The residents were asked to rate 19 possible reasons for their choice according to how important each was, using response scores on a scale of 1–3, where 1 = not important/not relevant, 2 = important and 3 = decisive. Table 1 shows the full list of possible reasons for choice.

### Data analyses

Analysis was carried out using SPSS Version 17 for Macintosh (SPSS, Inc., Chicago, IL, USA). Firstly, we conducted categorical principal component analysis (CATPCA) to determine the underlying latent dimensions within the 19 reasons for specialty choice. Factors were retained if their eigenvalues were > 1. Items were assigned to factors based on their largest

loading. Cronbach's alpha coefficient was calculated for the dimensions to determine scale reliability. The object scores on the dimensions were standardised scores (mean = 0, standard deviation = 1) and they were saved for further analyses.

Secondly, the dimensions retrieved with the factor analysis were compared by gender using *t*-tests. Thirdly, we analysed the differences in mean object scores on the dimensions of reasons for specialty choice by gender, year of graduation and the 10 specialties. Two-way analyses of variance were performed to compare the 10 specialties for each dimension of reasons for choice and to check for possible interactions by gender (specialty\*gender) and year of graduation (specialty\*year of graduation). Significant *F*-tests were followed by the examination of contrasts between the 10 specialties using Scheffe post hoc tests for unequal sample sizes. In the case of significant interaction by gender or year of graduation, the post hoc tests were conducted for males and females separately.

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## RESULTS

Of the 8626 residents enrolled in postgraduate medical training programmes to obtain specialist titles, 65% returned the questionnaire ( $n = 5631$ ). Residents who had not yet decided on a specialty and residents with missing values on the key variables were excluded, resulting in a sample size of 5038 residents.

Slightly over half the participants were male (51.3%,  $n = 2584$ ); the majority of participants were working full-time (90.7%,  $n = 4569$ ) and in their specialty of choice (84.7%,  $n = 4265$ ). The opportunity to treat complex illnesses (45.4%,  $n = 2288$ ), the opportunity to be confronted with a broad spectrum of diseases (41.1%,  $n = 2071$ ), opportunities for communication with patients (39.7%,  $n = 1998$ ) and the need for manual skills (39.7%,  $n = 1998$ ) were most commonly selected as decisive reasons for choice. The items that were least often selected as decisive were: income (4.5%,  $n = 229$ ); no change of residency necessary for medical training (6.1%,  $n = 307$ ), and not obliged to work emergency shifts (6.8%,  $n = 344$ ).

### Factor analysis

Three factors were identified with CATPCA using the eigenvalue and interpretability as criteria. Repeating the analysis with four factors resulted in a fourth dimension with only one reason for choice with a sufficient component loading. The three underlying

Table 1 Results of categorical principal component analysis of reasons for choice. Entries in bold indicate the dimension onto which each item loaded

	Dimension			Total
	Work and time-related aspects	Career-related aspects	Patient orientation	
Cronbach's $\alpha$	0.740	0.647	0.478	0.919
Total (eigenvalue)	3.343	2.587	1.826	7.755
% of variance	17.59	13.62	9.61	40.82
Component loadings				
To have autonomy instead of being a company employee	<b>0.380</b>	0.037	0.104	
To have fixed working hours	<b>0.745</b>	-0.087	-0.088	
To have as few as possible night and weekend shifts	<b>0.808</b>	-0.167	-0.199	
To have opportunities to work part-time	<b>0.630</b>	-0.272	0.052	
To not be obliged to work emergency shifts	<b>0.684</b>	-0.140	-0.165	
To have enough leisure time outside work/no work-related commitments after working hours	<b>0.745</b>	-0.115	-0.141	
Because no change of residency is necessary for medical training and specialty training	<b>0.382</b>	0.023	0.029	
Because manual skills are necessary	-0.153	<b>0.365</b>	-0.159	
To have opportunities for research	-0.050	<b>0.602</b>	-0.108	
Income	0.326	<b>0.470</b>	-0.282	
Good prospects (e.g. career prospects; EU/international compatibility)	0.224	0.659	-0.298	
To have opportunities to take over a supervisory position	0.129	<b>0.708</b>	-0.210	
To work in a team	0.187	<b>0.402</b>	0.214	
Because of the influence of a mentor/teacher	0.225	<b>0.440</b>	0.028	
Because of positive experiences during medical school	0.051	<b>0.303</b>	0.129	
To have the opportunity to treat complex illnesses	0.019	<b>0.504</b>	<b>0.503</b>	
Because communication is an important part of working with patients	0.255	0.002	<b>0.666</b>	
Because long-term care of patients is possible	0.256	0.000	<b>0.689</b>	
To have the opportunity to be confronted with a broad range of illnesses	0.085	0.298	<b>0.509</b>	

factors of reasons for specialty choice, which explained 40.8% of the variance in responses, were *work and time-related aspects*, *career-related aspects* and *patient orientation* (Table 1). Cronbach's alphas for the scales ranged from 0.48 to 0.74.

### Specialty and reasons for choice

Compared with men, women considered *work and time-related aspects* ( $t = -6.37$ ,  $P < 0.001$ ) and *patient orientation* ( $t = -11.91$ ,  $P < 0.001$ ) to be more

important reasons for choice, and *career-related aspects* ( $t = 16.06$ ,  $P < 0.01$ ) to be less important (Table 2). Residents who had recently graduated from medical school valued *career-related aspects* more than those who had graduated less recently ( $F = 12.6$ ,  $P < 0.001$ ).

A significant gender by specialty interaction was found for *work and time-related aspects* ( $F = 2.3$ ,  $P = 0.01$ ), indicating that men and women rated the importance of work and time differently for the various specialties. Therefore, stratified analyses were

Table 2 Differences in mean object scores for work and time-related aspects, career-related aspects and patient orientation by gender and year of graduation from medical school

	<i>n</i>	Work and time-related aspects	Career-related aspects	Patient orientation
		Mean (SD) test-value	Mean (SD) test-value	Mean (SD) test-value
Gender		$t = -6.37^\dagger$	$t = 16.06^\dagger$	$t = -11.91^\dagger$
Male	2584	-0.09 (0.96)	0.21 (1.00)	-0.16 (1.00)
Female	2454	0.09 (1.03)	-0.23 (0.95)	0.17 (0.97)
Year of graduation		$F = 2.02^*$	$F = 12.6^\dagger$	$F = 1.61$
2005/2006	538	0.05 (0.98)	0.25 (0.98)	-0.67 (1.00)
2004	570	-0.10 (0.90)	0.15 (0.97)	0.03 (0.99)
2003	575	-0.02 (0.98)	0.06 (0.98)	0.01 (1.01)
2002	638	0.00 (1.03)	-0.02 (1.01)	-0.04 (0.99)
2001	650	0.03 (1.01)	-0.00 (0.99)	-0.05 (1.00)
2000	496	0.08 (1.03)	-0.05 (1.01)	0.10 (1.01)
1999	434	-0.07 (1.03)	-0.12 (1.00)	0.03 (1.00)
1998 and earlier	996	0.03 (1.00)	-0.18 (1.00)	0.00 (1.00)

\*  $P < 0.05$ ;  $^\dagger P < 0.001$   
SD = standard deviation

conducted. No significant interaction was found for the other two dimensions or for year of graduation for the three dimensions.

Overall, *work and time-related aspects* was the least important dimension in choices for surgery and orthopaedic surgery, but it was the most important dimension for psychiatry and radiology residents (Table 3). The stratified analyses showed clear gender differences in the importance of *work and time-related aspects*. This dimension was important for female child psychiatry residents (mean = 0.40, standard deviation [SD] = 1.12), but it was not specifically important for male child psychiatrists (mean = -0.05, SD = 1.00). Female orthopaedic surgery residents valued *work and time-related aspects* less (mean = -0.59, SD = 0.72) than did males (mean = -0.36, SD = 0.72).

*Career-related aspects* was the most important dimension in choices for surgery and orthopaedic surgery and was also important in choices for the other specialties ('others'). *Career-related aspects* was least important for psychiatry and general medicine.

Anaesthesiology and orthopaedic surgery residents rated *patient orientation* as the least important dimen-

sion, whereas residents specialising in child psychiatry, internal medicine, paediatrics and general medicine considered *patient orientation* an important reason for their choice.

## DISCUSSION

This study showed that the reasons behind choice of specialty differ according to specialty and that gender, years since graduation, career-related issues, working hours and patient relationships are important factors in making a choice of specialty. It extends knowledge about the reasons for medical career choice by paying particular attention to 10 medical specialties and variations across these disciplines and the influence of year of graduation.

The factor analysis revealed three dimensions of reasons for choice: *work and time-related aspects*, *career-related aspects* and *patient orientation*. Income was most pronounced for the career-related dimension, but loaded for a smaller amount on the work and time-related dimension. In general, only 4.5% of residents considered income to represent a decisive factor in their choice of specialty.



Table 3 Mean scores of object scores for work and time-related aspects, career-related aspects and patient orientation by specialty

	<i>n</i>	Work and time-related aspects		Career-related aspects	Patient orientation
		Mean (SD)		Mean (SD)	Mean (SD)
		Males	Females		
Surgery	274	- 0.62 <sup>a</sup>	- 0.66 <sup>a</sup>	0.59 <sup>e</sup>	- 0.35 <sup>b,c</sup>
Orthopaedic surgery	217	- 0.36 <sup>a,b</sup>	- 0.59 <sup>a,b</sup>	0.50 <sup>e</sup>	- 0.62 <sup>a,b</sup>
Anaesthesiology	251	- 0.31 <sup>a,b</sup>	- 0.14 <sup>b,c,d</sup>	- 0.02 <sup>c,d</sup>	- 0.75 <sup>a</sup>
Radiology	300	0.31 <sup>c,d</sup>	0.47 <sup>f</sup>	- 0.10 <sup>b,c,d</sup>	- 0.13 <sup>c,d</sup>
Internal medicine	597	- 0.07 <sup>b,c,d</sup>	0.07 <sup>c,d,e,f</sup>	0.02 <sup>c,d</sup>	0.51 <sup>f,g</sup>
General medicine	352	0.06 <sup>b,c,d</sup>	0.23 <sup>d,e,f</sup>	- 0.39 <sup>a,b</sup>	0.34 <sup>f,g</sup>
Paediatrics	225	- 0.38 <sup>a,b</sup>	- 0.04 <sup>c,d,e</sup>	- 0.05 <sup>c,d</sup>	0.47 <sup>f,g</sup>
Gynaecology	273	- 0.29 <sup>a,b</sup>	- 0.31 <sup>a,b,c</sup>	0.05 <sup>c,d</sup>	- 0.01 <sup>d,e</sup>
Child psychiatry	341	- 0.05 <sup>b,c,d</sup>	0.40 <sup>e,f</sup>	- 0.27 <sup>a,b,c</sup>	0.62 <sup>f,g</sup>
Psychiatry	414	0.39 <sup>d</sup>	0.52 <sup>f</sup>	- 0.53 <sup>a</sup>	0.22 <sup>e,f</sup>
Others	1794	- 0.11 <sup>b,c</sup>	0.16 <sup>c,d,e,f</sup>	0.11 <sup>d</sup>	- 0.21 <sup>c,d</sup>

Identical superscripts (within columns) indicate a non-significant difference between a pair of means, whereas different superscripts indicate a significant difference using the Scheffe post hoc test ( $\alpha = 0.05$ )  
SD = standard deviation

In accordance with the literature,<sup>4,11-13,16-18</sup> this study showed that *career-related aspects* was found to be most important for surgery and orthopaedic surgery residents, who rated *work and time-related aspects* as least important. *Patient orientation* was important for internal medicine, general medicine, paediatrics and child psychiatry residents.

Anaesthesiology and gynaecology residents seemed to have no particular preference for any of the three dimensions as the scores for each were negative or around zero. Anaesthesiology and gynaecology are specialties often chosen by women, and therefore other reasons for choice not included in the study may have been more important than those that were included. Gynaecology is closely related to surgical specialties in term of its long working hours, shifts and high surgical workload. However, women may experience less 'male culture' in gynaecology compared with the other surgical fields,<sup>25</sup> which may also represent a reason for that choice. A combination of factors from the three dimensions may be important in the choice of anaesthesiology because this is a prestigious specialty which offers good career opportunities, is practised mainly in hospital settings, allows part-time work, and involves a

broad spectrum of medical problems.<sup>4</sup> This may explain why no specific dimension showed up as more dominant than the others.

The results regarding gender, revealing that women considered *work and time-related aspects* and *patient orientation* more important reasons for choice, and *career-related aspects* less important, are consistent with those of other studies. Previous studies have found that women doctors in general rate work and time-related and patient orientation factors to be of greater importance,<sup>8,24</sup> and career-related factors to be of lesser importance, than do men.<sup>3</sup> However, a novel finding in this study, revealed by the stratified analysis by gender, is that gender differences in *work and time-related aspects* are not similar across various specialties. In surgery, internal medicine and anaesthesiology, men and women are quite similar in how they rate the importance of *work and time-related aspects* in their choice of specialty. By contrast, in orthopaedic surgery, radiology, gynaecology, paediatrics and child psychiatry, clear gender differences exist in the importance of *work and time-related aspects*. As we see no significant gender differences in *career-related aspects* and *patient orientation* across the various specialties, the results

indicate that overall gender differences exist, resulting in a selection bias regarding specialty choice. As is shown, women tend to value *career-related aspects* less and are therefore less likely to choose surgical specialties and more likely to choose patient-oriented specialties. As a result, there are only small and insignificant gender differences within the specialties regarding *career-related aspects* and *patient orientation*. In the surgical specialties it is apparent that women who specifically choose surgery rate the importance of *work and time-related aspects* as or even less important than men do. Furthermore, year of graduation or seniority has an influence on reasons for choice and the results show a clear pattern. In the first year after graduation, residents consider *career-related aspects* as important; later in the training process the importance of *career-related aspects* clearly decreases. Reasons for choice related to career may be not very stable, and therefore the choice for a 'career specialty' may also be unstable.<sup>17,21</sup> A longitudinal study by Buddeberg-Fischer *et al.*<sup>4</sup> showed that over 5 years the number of women choosing surgery declined, indicating that these women changed to another specialty. The same decreasing pattern was found for men in anaesthesiology. In general, both women and men show increasing preferences for specialties that offer the possibility of a good work-life balance.<sup>9</sup> When the tension between having a family and having a career increases, women are more willing than men to compromise on their professional aspirations. Men, by contrast, maintain their high career aspirations as they still expect that their partner will provide the main care for their children.<sup>8</sup> The associations between seniority and reasons for choice and the likelihood of a subsequent change to another specialty, and gender differences in these changes, need to be examined in longitudinal studies.

The present study may not have assessed all aspects of specialty choice, such as academic opportunities, intellectual challenge<sup>17</sup> and a high administrative workload, which may be reasons to reject a career in family or general medicine.<sup>26,27</sup> In addition, the self-reported reasons for choice may have been influenced by the actual working conditions in the residency, or expectations of and experiences with specialties. The study may also be limited by its response rate, which, at 65%, was just acceptable, and by the lack of information on non-respondents. We were not able to assess the representativeness of the sample because no database exists with relevant demographic information on the total resident population. Other limitations of our study include its use of a non-validated questionnaire and its cross-

sectional design. As junior doctors may change their specialty choice and even their reasons for specialty choice during residency, it would be informative to examine which of the possible reasons are most important in the final choice of specialty and in the choice to change to another specialty. The results of this study cannot be generalised beyond the Swiss resident population.

Gender differences and reasons behind the choice of specialty differ across various specialties. Therefore, it is important to acknowledge that if residents have the wrong impression about a specialty in terms of work and time-related, career-related or patient orientation-related aspects, their expectations and perceptions need to be changed. Lambert *et al.*<sup>15</sup> showed that doctors who rejected a career in the surgical specialties or paediatrics were most likely to specify reasons relating to quality of life. These factors are sufficiently influential to persuade doctors to abandon an initial choice of specialty. With progressing seniority, gender differences in reasons for choice and specialty choice may become more pronounced, especially regarding career aspects. The results of this study suggest that residents should have sufficient flexibility to allow them to change from one specialty to another as an individual's reasons for specialty choice may change, which may lead to a change in the specialty preferred. One possible way to facilitate specialty changes and retain junior doctors in patient care may be to construct postgraduate training programmes on a modular basis.

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*Contributors:* KvdH analysed the data and wrote the paper. MS, MG and CB conceived the study and participated in writing the paper. PO designed and conducted the study and participated in writing the paper. All authors approved the final manuscript for publication.

*Acknowledgements:* none.

*Funding:* none.

*Conflicts of interest:* none.

*Ethical approval:* no ethical approval was required for this study according the ethical guidelines of the ETH ethical committee. The study was carried out in accordance with the Declaration of Helsinki. The anonymity of the participants was guaranteed.

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*Received 7 July 2009; editorial comments to authors 27 August 2009, 6 November 2009, 30 December 2009; accepted for publication 12 January 2010*