Specialty choice, stress and personality: their relationships over time

Jenny Firth-Cozens, Victoria Caceres Lema, Robert A Firth

A longitudinal questionnaire study of 314 medical students followed up as preregistration house officers (PRHOs) and again 7 years later showed laboratory-based doctors were the least happy with their choice of career and were the most stressed now, while surgeons were the most happy with their choice and the least stressed. These differences were apparent 10 years earlier. The study also describes perceived influences on specialty choice and explores how earlier factors, such as personality as students and stress in the PRHO year, may also have influenced specialty choice.

INTRODUCTION

There is sometimes more difference between the roles of doctors in the various specialties of medicine than between those of medical compared to non-medical health practitioners. Why one role rather than another is chosen is important for staffing considerations, but also in terms of person–job fit and its relationship to stress and job satisfaction (Firth, 1985), especially as these have implications for patient care (Firth-Cozens, 1999a).

Within the UK, stress levels are high in doctors, with around 28% above the threshold for emotional distress (Firth-Cozens, 1999a; Wall, 1997), and around 22% of doctors still practising say that they regret their choice of career (Clack, 1999). Since there are reports that as many as 13.7% of 1988 qualifiers are no longer practising medicine in the UK (Medical Workforce Standing Advisory Committee, 1997), it is particularly important that we investigate satisfaction with specialty choice as one factor that may lead to stress, general dissatisfaction and post-qualification wastage. Equally, it is important to know whether earlier stress, dissatisfaction or disposition may have influenced specialty choice.

The links between individual characteristics and intended and actual specialty choice have been investigated in numerous ways. For example, Linn and Zeppa (1984) found that students with higher self-esteem were more likely to intend to choose specialties often seen as stressful, such as surgery; while a number of reports suggest that students with high symptoms of psychological distress are more likely to report intending to pursue psychiatry (Eron, 1955). Specialties with low patient contact such as pathology and pharmacology have been found to attract those with lower self-assurance than average (Bartnick et al, 1985).

Many of the studies have been conducted on the possible future career choices of those who are still students, and most have been cross-sectional. However, longitudinal data are able to offer a more coherent picture of the complex issues involved, for example, in whether doctors in a specialty have particular emotional or personality profiles before they enter the field or have been socialized into them by their experiences within it.

Some authors in the general field of occupational stress have argued that stress and job dissatisfaction are largely a reflection of the same dispositional state of negative affectivity (Ormel, 1983), and that this can have quite strong long-term effects on later life satisfaction (Costa et al, 1987). It might therefore be expected that being disillusioned with the choice of medicine as a student would be related to dissatisfaction with one's job as a more senior doctor. Characteristics such as high self-criticism as students have been shown to be highly predictive of stress and depression in doctors 10 years later (Firth-Cozens, 1999b), and it may be that specialty choice is also involved in this pathway.

This article reports previously unpublished data from a longitudinal study of doctors 8 years after graduation, considering potential long-term influences on specialty choice and satisfaction, and current perceptions of influences for men and women as well as current stress in each specialty. Finally, it considers doctors' suggestions for providing better career counselling within medicine.

METHOD

Participants

The subjects are doctors who came from a group of 4th year medical students invited in 1983–84 (Time 1) to participate in a survey of levels and sources of stress, personality and family relationships. The response rate for this initial study was 78.5% (n=318). The 238 who graduated in 1985 were followed up in their first postgraduate year (Time 2), with 170 (71.4%) responding. The original 318 were followed up (Time 3) 10 years after their initial assessments.

Subjects were traced via the Medical Register, using the General Medical Council's database for more up-to-date

Professor Jenny Firth-Cozens is Director of the Centre for Clinical Psychology and Health Care Research, University of Northumbria at Newcastle, Newcastle upon Tyne NE7 7XA, **Dr Victoria Caceres Lema** is Research Student in the Psychology Department, University of Santiago de Compostela, Galicia, Spain and **Dr Robert A Firth** is Research Assistant, Department of Psychology, University of Leeds, Leeds

Correspondence to: Professor J Firth-Cozens

searches where necessary. There were 14 whose addresses were not found on either search and two questionnaires were returned 'addressee unknown', making 302 questionnaires that presumably reached their destination. Of these 224 were returned, yielding a response rate of 74.2%.

Measures

Specialty: Doctors' career choice was asked on each occasion. These choices were used as given in order to look at those changing specialties, but also coded into 6 broader categories:

- General practice
- Psychiatry
- General medicine, paediatrics and radiology (joined because of small numbers)
- Anaesthetics
- Surgery, obstetrics and gynaecology, and accident and emergency
- Laboratory-based specialties.

In addition, participants were asked at Time 3 for the influences on their actual career choice, and were provided with a list of possibilities (for example, to lower stress, with space to add other reasons) and a Likert scale from 1–5 with higher scores indicating greater influence. They were also asked for their levels of satisfaction with their career choice.

Help with career choice: Their views on ways that career counselling could be improved (open-ended responses) were content analysed into 10 categories.

Stress and satisfaction: Stress levels, at Time 1, 2 and 3, were measured using the General Health Questionnaire (GHQ) 12-item version (Goldberg, 1978). Specialty satisfaction was asked at Time 3 with a single question using a 7-point Likert scale: the higher the score the higher the satisfaction with their choice of specialty. At Time 2 and Time 3 they were asked how satisfied they were with the choice of medicine as a career and at Time 1 the extent to which they were disillusioned with their career choice.

Personality: Self-criticism and self-efficacy were measured as students, using the scales devised and shown to be valid by Blatt et al (1982) to explore potential dispositional influences on specialty choice.

Analyses: Because of the very large differences in numbers between specialties, only descriptive statistics are used to compare them. Correlational analyses to explore relationships and *t*-tests to consider gender differences take place on the whole sample.

RESULTS

More than half the respondents (131) were now general practitioners, while 13 were psychiatrists, 19 were in the surgical group, 39 were in the general medicine group, 9 were anaestheticsts and 8 were in laboratory-based specialties. There was some consistency (r=0.29; P<0.01) between career choice as preregistration house officers (PRHOs) (Time 2) and their current posts 8 years later (Time 3). From their student assessment, consistency was somewhat less (r=0.22, P<0.01) although 31% of current psychiatrists and 20% of general practitioners had stayed with their original student career choice.

Influences on career choice

Table 1 sets out mean influences on specialty choice for men and women

TABLE 1.
Means of influences on career choice and satisfaction by speciality and gender

Influence	Psychiatry		General practice		Hospital medicine		Anaesthetics		Surgery/O&G		Laboratory		Overall influence
	M (*n*=7)	F (*n*=6)	M (*n*=76)	F (*n*=49)	M (*n*=19)	F (*n*=19)	M (*n*=8)	F (*n*=1)	M (*n*=13)	F (*n*=6)	M (*n*=5)	F (*n*=3)	M/F (*n*=212)
Fewer hours	**3.14** (1.07)	**3.67** (1.03)	3.16 (1.32)	3.57 (1.26)	2.63 (1.50)	2.95 (1.61)	1.75 (1.49)	3.00 (0)	2.00 (1.35)	2.33 (2.07)	3.20 (1.64)	**4.67** (0.58)	3.08 (1.45)
Partner's job	1.00 (0)	1.50 (1.22)	1.93 (1.35)	2.65 (1.65)	1.58 (1.07)	1.56 (1.15)	1.00 (0)	1.00 (0)	1.33 (0.89)	1.83 (1.60)	1.00 (0)	1.00 (0)	1.87 (1.36)
Less patient contact	1.14 (0.38)	1.67 (1.03)	1.30 (0.71)	1.21 (0.46)	1.79 (1.44)	1.68 (1.25)	2.00 (1.07)	2.00 (0)	1.31 (0.63)	1.17 (0.41)	**4.00** (1.00)	3.67 (2.31)	1.53 (1.05)
Finances	2.14 (1.21)	2.17 (1.33)	3.13 (1.18)	2.92 (1.24)	1.79 (1.08)	1.84 (1.30)	1.25 (0.71)	4.00 (0)	3.23 (1.17)	2.00 (1.67)	2.00 (1.00)	1.00 (0)	2.67 (1.33)
Prestige	2.00 (1.00)	2.50 (1.22)	2.53 (1.12)	2.22 (1.12)	2.05 (1.39)	2.37 (1.12)	1.88 (1.13)	4.00 (0)	3.08 (1.12)	1.67 (1.21)	2.20 (1.30)	1.00 (0)	2.40 (1.20)
Less stress	**3.14** (0.69)	**3.50** (0.84)	2.80 (1.21)	3.04 (1.27)	2.11 (1.38)	2.58 (1.39)	1.38 (1.06)	2.00 (0)	2.08 (1.32)	1.67 (1.21)	**4.00** (0.71)	**4.00** (1.73)	2.72 (1.33)
More security	2.14 (0.90)	2.67 (1.37)	3.62 (1.20)	3.12 (1.25)	2.21 (1.08)	2.84 (1.42)	2.75 (1.04)	4.00 (0)	**3.38** (0.87)	1.17 (0.41)	2.60 (1.67)	1.67 (1.15)	3.08 (1.31)
More professional freedom	**3.14** (1.21)	3.00 (1.26)	**3.84** (1.06)	**3.45** (1.21)	2.21 (1.27)	2.89 (1.45)	**3.25** (1.28)	4.00 (0)	3.15 (1.07)	2.50 (1.52)	3.80 (0.45)	1.00 (0)	3.37 (1.28)
More time for children	1.83 (1.33)	3.17 (1.83)	3.05 (1.53)	**3.87** (1.41)	1.94 (1.35)	2.42 (1.68)	1.25 (0.71)	3.00 (0)	1.62 (1.19)	2.67 (1.97)	1.80 (1.10)	2.33 (2.31)	2.83 (0.64)
The nature of the work	**4.57** (0.53)	**4.00** (0.63)	**4.03** (0.86)	**4.00** (0.91)	**4.05** (0.97)	**3.63** (1.67)	**4.50** (0.53)	**4.00** (0)	**4.92** (0.28)	**5.00** (0)	3.00 (1.58)	**4.33** (1.15)	4.05 (1.05)
Speciality satisfaction (1–7)	5.86 (1.46)	4.83 (2.04)	5.17 (1.50)	5.29 (1.54)	5.37 (1.21)	5.21 (1.78)	5.25 (1.58)	6.00 (0)	6.31 (0.75)	6.67 (0.82)	6.20 (0.45)	6.00 (1.00)	5.43 (1.51)

O&G = obstetrics and gynaecology. Figures in bold indicate strongest influences above 3.0; figures in brackets indicate standard deviation

and their satisfaction with that choice. Bold numbers indicate the strongest influences above 3.0. Those in each specialty group, apart from laboratory-based males, were most likely to have chosen their specialty because of the nature of the work involved.

Beyond this, male and female psychiatrists' main reason for their choice was to work fewer hours (means = 3.1 and 3.7 respectively) and to avoid stress (3.1 and 3.5); for male general practitioners it was more professional freedom (3.8), while for women the main influence was wanting more time for children (3.9). No strong influences exist for those in the hospital medicine group, perhaps because this was a more mixed group than the rest. There was only one female anaesthetist with a number of strong influences, but for males, the principal one was wanting more professional freedom (3.3). In the surgical group security, financial considerations and professional freedom all mattered to the males (3.4, 3.2 and 3.2 respectively), but there was no clear female influence apart from the nature of the work involved (5.00).

The male laboratory-based doctors chose because of lower patient contact and less stress (4.0) with women choosing because of the shorter hours (4.7) and less stress (4.0), although less patient contact was also important to them (3.7). Satisfaction with career choice overall was high (mean = 5.43, standard deviation (sd) = 1.5). Those with the highest satisfaction for both men and women were surgeons (6.3 and 6.7 respectively), and the lowest were male general practitioners (5.2) and female psychiatrists (4.8).

Stress and personality

Table 2 sets out stress levels in the various specialty groups over the three assessments, hours worked in the last week and satisfaction with medicine as a career choice (both at Time 3), and mean self-criticism and efficacy scores as students. Current stress levels are highest in laboratory-based specialties (14.00) and psychiatrists (13.69) and lowest in surgeons (11.26) and anaesthetists (11.44).

Looking at the same people's scores as students and PRHOs, those who became laboratory based had the highest scores on both occasions (13.38 and 16.60), while students who became surgeons had the lowest scores (10.53 and 10.71). Anaesthetists report the most hours of work (mean=83.0) while those in laboratory-based specialties report the fewest (50.3). Career choice satisfaction (range 0–4) is highest in surgeons (3.68) and lowest in psychiatrists (2.15).

Self-criticism scores as students are highly related to stress levels then (r=0.44, P<0.001) and at Time 3 (r=0.32, P<0.001). It can be seen in *Table 2* that the highest levels of self-criticism as students are for those who became psychiatrists (4.4), and the lowest are for those who became anaesthetists (3.4), surgeons (3.6) and general practitioners (3.6). Self-efficacy scores as students are not significantly related to stress scores now (r=–0.12), although it was at Time 1 (r=–0.18, P<0.05). *Table 2* shows that students who became surgeons had the highest self-efficacy (4.9), while those who became laboratory workers had the lowest (4.2).

There were small but significant correlations between higher GHQ scores as PRHOs and being influenced in specialty choice by wanting less stress at Time 3 (r=0.21, P<0.01), less contact with patients (r=0.19, P<0.05), and actually working fewer hours (r=–0.21, P<0.01). Higher self-criticism as students was also significantly related to wanting to reduce patient contact (r=0.18, P<0.05) and wanting to reduce stress (r=0.17, P<0.05), while higher self-efficacy was significantly related to being influenced by prestige (r=0.15, P<0.05). There were no significant correlations between disillusion with career choice as students and satisfaction with career choice now, although there was a significant correlation between satisfaction with career choice as PRHOs and now (r=0.22, P<0.01). Current satisfaction with specialty choice is highly negatively related to current stress levels (r=–0.35, P<0.00) and to current satisfaction with career choice (r=0.55, P<0.001).

Overall 32% expressed some dissatisfaction with their career choice (scoring 3 or 4) and 11% agreed that they did not see themselves continuing in medicine. There were no sex differences at any time for stress, nor for specialty satisfaction.

Career counselling

The mean score for satisfaction with the help received in terms of career counselling is 3.27 (sd = 1.64) suggesting overall dissatisfaction. Doctors'

TABLE 2.
Mean stress, hours, self-criticism scores, and self-efficacy by speciality grouping

	Psychiatry (n=13)	General practice (n=127)	Hospital medicine (n=39)	Anaesthetics (n=9)	Surgery/O&G (n=19)	Laboratory (n=8)
GHQ as students	11.85 (4.91)	11.43 (5.50)	12.28 (4.89)	10.56 (3.94)	10.53 (4.90)	13.38 (3.89)
GHQ as preregistration house officer	11.75 (3.49)	11.61 (4.79)	13.12 (5.25)	12.00 (4.74)	10.71 (6.59)	16.60 (3.51)
GHQ at time 3	13.69 (7.98)	12.57 (6.27)	11.74 (4.70)	11.44 (2.96)	11.26 (6.26)	14.00 (7.05)
Hours in past week (time 3)	60.83 (13.07)	57.85 (27.96)	55.49 (32.01)	83.00 (21.17)	74.16 (24.53)	50.29 (7.23)
Career choice satisfaction (time 3)	2.15 (1.68)	3.35 (1.18)	3.31 (1.06)	3.33 (1.00)	3.68 (0.82)	3.13 (1.36)
Self-criticism as students	4.40 (1.37)	3.57 (1.30)	4.14 (1.49)	3.44 (1.20)	3.55 (1.48)	4.28 (1.37)
Self-efficacy as students	4.63 (0.79)	4.62 (0.86)	4.71 (0.80)	4.69 (0.46)	4.92 (0.92)	4.22 (1.21)

GHQ = general health questionnaire; O&G = obstetrics and gynaecology. Figures in brackets indicate standard deviation

suggestions for improving career counselling have been categorized in *Table 3*. It can be seen that the largest category concerns starting career advice early on, followed by a need for more flexibility, and information and guidance from senior staff.

DISCUSSION

This study confirms other findings concerning personality traits of individual groups, but also demonstrates the importance of using longitudinal data to look at specialty influences over the course of training, rather than only cross-sectionally. On the whole it shows some remarkable consistencies within specialities over time: while others have noted an adherence to early career choice from graduates onwards (Edwards et al, 1997), these findings suggest that for some groups this is underpinned by other more dispositional consistencies.

For example, one of the main influences for the small group working in laboratory-based specialties was to reduce patient contact and to have less stress. However, we also see that high levels of stress have been apparent in that group since they were students, and particularly as PRHOs. Although their numbers are small, the study confirms the findings of Bartnick et al (1985) that as students they were the least self-confident, and this may have influenced their decision to remove themselves from patient contact to a large extent. Surgeons, on the other hand, have low self-criticism and high efficacy, confirming earlier studies (Zedlow and Daugherty, 1991), and perhaps helping them to have the lowest stress levels on every occasion; in fact, these may well be essential characteristics for using a scalpel.

Psychiatrists also have high stress scores now; however, as students and as PRHOs their stress levels were average. The results in *Table 2* suggest that high current scores may be more as a result of their strong self-critical dispositions which, in a specialty where there is great uncertainty, few clear-cut cures, and little patient and public appreciation, may well be a recipe for job stress.

These data allow us to suggest that the influence of specialty choice on stress symptons is by no means unidirectional. Although the role chosen may create new stressors for its doctors, the levels of earlier stress and the dispositions that relate to these are influential in one's choice. Moreover, stress levels experienced when working as a PRHOs clearly play a part in determining future careers, to the extent that those with higher levels then are actually now working fewer hours.

In terms of their perceived influences (*Table 1*), it is the nature of the work that is seen as being the predominant attraction for men and women overall, followed by wanting more professional freedom, which was especially important for general practitioners. It is clear that, apart from those in general practice, having more time for children is not a male influence at all. Laboratory-based doctors are the only ones to have chosen very clearly to have less patient contact.

Although it has been suggested that life satisfaction is almost a trait (Costa et al, 1987), there is no correlation between how content they were with their career choice as students and how content they are with it now; nevertheless, there is a relationship between career choice satisfaction now and 8 years earlier as PRHOs (r = 0.22), suggesting that if people are feeling disillusioned in that year, this may to some extent be perpetuated. It is particularly important therefore for it to be recognized and addressed in that first postgraduate year, perhaps by targetted counselling towards a suitable specialty, especially as some of the least satisfied doctors may have already left medicine by Time 3. Support for a dispositional basis to job satisfaction in medicine is not, however, confirmed by these data.

Satisfaction with their final choice is high for all groups. Nevertheless, there is a sizable number of doctors not happy with the choice of medicine as a whole: 32% expressed dissatisfaction with their overall career choice — particularly psychiatrists — and 11% did not see themselves continuing in medicine, even at this stage of their careers. This is a serious finding, and it is worth considering what may be done to improve things.

The doctors themselves offer good suggestions for helping them the choice of an appropriate specialty, the most important being to begin during medical school, for example undergraduates and potential undergraduates

TABLE 3.
Suggestions for improving the process of career choice

Suggestions	Frequency	Percentage
Importance of timing: guidance given to medical students more often and at more appropriate times	34	17.4
A more flexible career structure: enabling speciality change more easily, part-time work etc without threat to career	32	16.4
Information on career structure in specialities: such as career options, length of training, exams and prospects	29	14.9
More guidance from senior staff: should spend more time on career counselling; should take more time and interest and provide mentoring	24	12.3
Experience of variety: need more of a taste of everything	19	9.7
Assessment: early assessment of capabilities, personalities and skills needed for medicine/specific specialities	17	8.7
Anything is better than nothing: any guidance would have helped	15	7.7
Specific experiences: more time exposure to certain specialities, e.g. general practice	14	7.2
Expert help: access to independent and confidential careers guidance	10	5.1
Nothing to improve: everything is fine — choosing a career is one's own responsibility (a surgeon)	1	0.5
Total	195	

must be told what criteria will be needed and what sort of things they will end up doing after their qualify. It's too late to change careers once you've been through the treadmill — it would be too much of a waste. The second largest category concerned a more flexible career structure, allowing people to change more easily and to take years off: a wider based senior house officer training scheme that would allow people to taste various specialties without adverse effects on their career structure.

The findings suggest more complex issues surrounding career choice, making the case for large national studies enabling multivariate analyses (Mowbray et al, 1990). However, they do raise difficult questions concerning selection. Should the profession be aiming its selection procedures towards those who are most confident and less likely to become stressed, for example? The consistency of high stress scores in some groups suggests that this might to some extent be possible, but would it mean that then there would be fewer laboratory-based doctors and far more surgeons? Unless medicine changes direction towards separate professional education for the different specialties, then its intake must provide doctors for the very wide job characteristics to be tackled.

Nevertheless, the suggestions about the possible route to high stress and dissatisfaction scores in psychiatry means that it may be possible to tease out more appropriate selection paths after graduation using psychometric testing as other professions do (Reeve et al, 1993), but with particular knowledge about the very different jobs involved in medicine. **HM**

Source of funding: NHS Executive R&D, Mental Health of the NHS Workforce Initiative.

Bartnick LW, Kappelman MM, Berger JH, Sigman B (1985) The value of the California Psychological Inventory in predicting medical student's career choice. *Med Educ* **19:** 143–7

Blatt SJ, Quinlan DM, Chevron ES, McDonald C (1982) Dependency and self criticism: Psychological dimensions of depression. *J Consulting Clin Psychol* **50:** 113–24

Clack GB (1999) A retrospective survey of medical specialty choice and job satisfaction in a sample of King's graduates who qualified between 1985/86 and 1989/90. *Med Teacher* (in press)

Costa PT, McCrae RR, Zonderman AB (1987) Environment and dispositional influences on well-being: Longitudinal follow up of an American national sample. *Br J Psychol* **78:** 299–306

Edwards C, Lambert TW, Goldacre MJ, Parkhouse J (1997) Early medical career choices and eventual careers. *Med Educ* **31:** 237–42

Eron LD (1955) Effect of medical education on medical students' attitudes. *J Med Educ* **30:** 559–66

Firth J (1985) Personal meanings of occupational stress: cases from the clinic. *J Occup Psychol* **58:** 139–48

Firth-Cozens J (1999a) Physician wellbeing and patient care. *Soc Sci Med* (in press)

Firth-Cozens J (1999b) The psychological problems of doctors. In: Firth-Cozens J, Payne R, eds. *Stress in Health Professionals: Psychological and Organizational Causes and Interventions.* J Wiley and Son Ltd, Chichester

Goldberg D (1978) *Manual of the General Health Questionnaire.* NFER, Windsor

Linn BS, Zeppa MD (1984) Does surgery attract students who are more resistant to stress? *Ann Surg* **200(5):** 638–43

Medical Workforce Standing Advisory Committee (1997) *Planning the Medical Workforce.* NHS Executive, Leeds

Mowbray RM, Davies BM, Biddle N (1990) Psychiatry as a career choice. *Aust NZ J Psychiatry* **24:** 57–64

Ormel J (1983) Neuroticism and well-being inventories: measuring traits or states? *Psycholog Med* **13:** 165–76

Reeve PE, Vickers MD, Horton JN (1993) Selecting anaesthetists: the use of psychological tests and structured interviews. *J Royal Soc Med* **86:** 400–5

Wall TD, Bolden RI, Borril CS et al (1997) Minor psychiatric disorder in NHS trust staff: occupational and gender differences. *Br J Psychiatry* **171:** 519–23

Zedlow PB, Daugherty SR (1991) Personality profiles and specialty choices of students from two medical school classes. *Acad Med* **66(5):** 283–7

KEY POINTS

- Specialty choice is influenced by earlier levels of stress and self-efficacy.
- Stress levels in surgery and laboratories — whether high or low — are remarkably constant over 10 years, suggesting individual factors are playing a strong role.
- Dissatisfaction with medicine as a career comes early and continues in many doctors.
- Better help is needed for preregistration house officers who are dissatisfied with their career choice, and more generally to help specialty choice.
- Selection of extra hardy and confident students may result in some specialties being under-staffed.