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Does Medicine Run in Families? If So, Why? And Does It Matter?

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Abstract

Doctors are commonly thought to have parents who are also doctors. Debate continues about whether entry as well as career progression is eased for those who follow relatives into the profession. In this paper a literature review has explored why medicine runs in families. The limited literature from different countries corresponded with popular perception. Over one in five doctors or medical students have fathers and/or mothers in the medical profession.

From the eighteenth century onwards, the advantages of being able to join a medical relation, perhaps first as an apprentice then as a partner, have been both financial and social. Explanations for the high proportion of doctors' children recruited to medical schools include doctors having ample financial means to support their children, that they wish to maintain social status, and that their children develop an interest in medicine because of their parents' line of work.

However, crude nepotism no longer obtains and other barriers to social mobility have had to be addressed. Recently there has been an increase in the number of entrants to medical school with demographic characteristics associated with social and economic disadvantage and today the medical student population is increasingly diverse.

Keywords

Family history, Career, Medical student, Selection, Occupational heritability

Introduction

The author was dimly aware of his medical forebears but was 47 years old before discovering they spanned eight generations. The author may have been unconscious of medicine as a family business but perhaps this was because it was so quietly ingrained in the family culture that he did not recognise it. Interestingly, medical obituaries suggest that it is common for doctors to have siblings and children who are also doctors. But the

debate continues as to how having doctors in the family influences career decisions and whether career progression is eased for those who follow relatives into the profession.[1] If a career in medicine often runs in the family, so-called occupational heritability, why? And does it matter?

Sources and searches

Literature searches were undertaken of the Scopus and PubMed databases. Search terms included (CAREER) AND (FAMILY OR PARENT OR FATHER OR MOTHER) AND (MEDICAL OR DOCTOR OR GP).

This revealed a sparse and descriptive literature. Of 126 publications identified, 21 containing quantitative data were analysed in detail. This was supplemented by a search of 'grey' literature in the UK and direct approaches to relevant regulatory bodies such as the General Medical Council and the Medical Schools Council.

The quantitative surveys used a range of data sources and were methodologically limited. Denominators varied and data were often incomplete. Therefore, drawing more than broad comparisons is problematic.

Review of selected papers

United Kingdom

A study based on Suffolk found that 28 (19%) of 149 fathers of apothecaries' apprentices working between 1815 and 1858 were also apothecaries. A high proportion of apprentices had fathers in medicine.[2] Richard Smith (1772-1843), a surgeon who compiled a biography of doctors practising in the Bristol area in the eighteenth and nineteenth centuries, found that there tended to be a higher proportion of professional and upper-class fathers among physicians, but the sample sizes were small (Table 1). Smith also noted that general practitioners (GPs) after 1815 came from the same broad ranks of apothecaries and surgeon-apothecaries.[3] [4]

Two in five GPs had a relative in the medical profession between 1820 and 1850, dropping to one in three between 1890 and 1910 which was a period of unprecedented medical school development. Before 1910, only one in eight were family practices. After the introduction of National Health Insurance in 1911 that increased to one in seven.[5]

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[1] Rimmer A. "My mum made me do it" – doctors and their medical dynasties. *British Medical Journal,* 2014; 349: g7625. https://doi.org/10.1136/bmj.g7625

[2] Van Zwanenberg D. The training and careers of those apprenticed to apothecaries in Suffolk, 1815-1858. *Medical History.* 1983; 27: 139-150.

[3] Richard Smith Papers, 1735-1948. The records of Bristol Royal Infirmary. Bristol Archives. https://archives.bristol.gov.uk/records/35893/36

[4] Loudon I. *Medical Care and the General Practitioner*, 1750-1850. Oxford: Oxford University Press; 1986. p.258.

[5] Peterson JM. *The Medical Profession in Mid-Victorian London.* Berkeley: University of California Press; 1978. p.200-205.

Father's occupation	**Surgeons/Apothecaries/GPs**	**Physicians**
Surgeon/Apothecary	19	4
Clergy	11	3
Lawyer	2	
Army/Naval Officer	2	
Landed/Esq	8	4
Farmer	3	
Bank employee	2	
Clothier	2	
Schoolmaster	1	1
Merchant	4	1
Sailmaker	1	
Liquor dealer	1	
Dyer of feathers	1	
Grocer		1
Sugar baker		1
Wine cooper	1	
Other	10	
TOTAL	68	15

Table 1. Occupation of fathers of medical practitioners in the West of England, 1760-1830. Richard Smith Papers, 1735-1948 (Note 3).

Father's occupation	**Physicians (%)**	**Surgeons (%)**	**Apothecaries (%)**
Medicine	169 (22.4)	287 (11.7)	438 (35.3)
Clergy	70 (9.2)	91 (3.7)	79 (6.4)
Lawyer	20 (2.6)	27 (1.1)	34 (2.7)
Army/Navy	19 (2.5)	37 (1.5)	51 (4.1)
Schoolmaster	1 (0.1)	7 (0.3)	7 (0.6)
Landowner	8 (1.1)	2 (0.1)	0
Farmer	6 (0.8)	20 (0.8)	22 (1.8)
Scholar, university professor	7 (0.9)	5 (0.2)	0
Trade, craft and labour	23 (3.0)	27 (1.1)	84 (6.8)
Civil service	19 (2.5)	20 (0.8)	17 (1.4)
Business, manufacturer	54 (7.1)	86 (3.5)	83 (6.7)
Gentleman, Esq	17 (2.2)	27 (1.1)	213 (17.2)
Miscellaneous	22 (2.9)	32 (1.3)	47 (3.8)
Unknown	321 (42.5)	1,784 (72.8)	166 (13.4)
TOTAL	**756 (100)**	**2,452 (100)**	**1,241 (100)**

Table 2. Occupation of fathers of nineteenth-century medical practitioners. Peterson. *The Medical Profession,* 1978 (Note 5).

A study of nineteenth-century registers from the Royal College of Physicians (Munk's Roll), Royal College of Surgeons (Plarr's Lives) and the Worshipful Society of Apothecaries found some differences between these three groups.[6] Overall 894 (20%) of 4,449 doctors for whom information was available had fathers in the profession. However, the surgeons' data were particularly incomplete (Table 2).

The UK Medical Careers Research Group, now disbanded, undertook periodic surveys of UK medical graduates. The last detailed study was in 2000: 65% (2,727/4,185) responded of whom 6.2% had parents who were both medically qualified, 17.5% had a medical father, and 2.4% a medical mother (Table 3). Overall, one in five had at least one medically qualified parent. Of 662 respondents living with their spouse or partner, over a third had partners who were medically qualified.[7]

Parents qualified	**Male**	**Female**	**Total**
Father and mother	75 (6.5%)	95 (6.1%)	170 (6.2%)
Father only	138 (11.9%)	170 (10.9%)	308 (11.3%)
Mother only	27 (2.3%)	39 (2.5%)	66 (2.4%)
Neither	910 (78.3%)	1,245 (79.6%)	2,155 (79.0%)
No information	12 (1.0%)	16 (1.0%)	28 (1.0%)
TOTAL	**1,162 (100%)**	**1,565 (100%)**	**2,727 (100%)**

Table 3. Parents medically qualified. Peterson. *The Medical Profession,* 1978 (Note 5).

International

A comparable proportion 670 (20.1%) of applicants to the Hamburg Medical School in a corresponding period had at least one parent working as a physician which was a similar number to practising Hamburg physicians, 388 (21.4%). The authors also found that there was a lack of cultural and economic diversity: 1,049 (57.9%) of physicians in Hamburg and 462 (73.8%) of medical students originated from the top socio-economic quintile, while the Turkish and Polish communities who were less affluent were particularly under-represented.[8]

A study from Sweden examined changes in occupational heritability over time. Out of 27,788 physicians, where the educational background for both parents was known, 3,890 (14%) had a parent who was also a physician and 556 (2%) had two parents who were both physicians. The proportion of physicians with at least one physician parent rose from 1,667 (6%) for physicians born in 1950-59 to 5,558 (20%) for physicians born in 1980-90, a statistically significant increase. However, this pattern of increasing

[6] Peterson. *The Medical Profession,* 1978 (Note 5).

[7] UK Medical Careers Research Group, Institute of Health Sciences, University of Oxford. 1999 cohort of UK Medical Graduates. Report of First Survey. Oxford, October 2001. https://www.uhce.ox.ac.uk/ukmcrg/pdf_reports/99in00report.pdf

[8] Groene O, Huelmann T, Hampe W, Emami P. German Physicians and Medical Students Do Not Represent the Population They Serve. *Healthcare,* 2023; 11(12): 1662.

occupational heritability was not seen for individuals with law degrees. Therefore, the intergenerational persistence of high-paying degrees alone could not explain the increasing occupational heritability in medicine.[9]

Less methodologically robust surveys, for example, from the US[10], Canada[11], Mexico[12] and Pakistan[13] have all suggested similar propensities.

Relevance

It should be noted that the research base of the current study was small and of poor quality. Much of the relevant literature is unpublished and hence this account does not claim to be comprehensive. However, the limited literature from different countries does suggest, in line with popular perceptions, that medical careers run in families. Furthermore, the proportion of doctors with medical parents was surprisingly consistent, remaining at about one in five. Why is this so and does it matter?

In the past in the UK, the early years in medical practice tended to be the most financially precarious.[14] An 1842 guide to parents reminded them that 'by the time when a physician earns his bread and cheese he has no longer the teeth to eat them with'.[15] From the eighteenth century onwards, the advantages of being able to join a medical relation, perhaps first as an apprentice then as a partner, were both financial and social. Keeping a lucrative business in the family provided a springboard from which they were able to reinforce their growing social status.

In mid-Victorian England, medicine did not yet attract those from society's upper classes, that is, the aristocrats and landed gentry.[16] Doctors tended to come from the growing middle classes. Doctors' parental origins gave no claim to gentlemanly status and their professional activities were regarded as sullying their claims of being a gentleman. Furthermore, their inferior status discouraged the sons of gentlemen entering and thereby raising the social standing of the whole group.

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[9] Polyakova M, Persson P, Hofmann K, Jena AB, Newhouse RL. Does medicine run in the family – evidence from three generations of physicians in Sweden: retrospective observational study. *British Medical Journal.* 2020; 371: m4453. https://doi.org/10.1136/bmj.m4453

[10] Talamantes E, Henderson MC, Fancher TL, Mullan F. Closing the gap – making medical school admissions more equitable. *New England Journal of Medicine.* 2019; 380(9): 803-805.

[11] Khan R, Apramian T, Kang JH, Sibbald S. Demographic and socioeconomic characteristics of Canadian medical students: a cross-sectional study. *BMC Medical Education.* 2020; 151. https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-020-02056-x

[12] Marin-Lopez A, Garcia-Villasenor E, Bojalil-Alvarez L, Murrieta-Alvarez, I, Cantero-Fortiz Y, Viesca-Trevino CA *et al*. Families of doctors at Academia Nacional de Medicina de México. *Gacela Médica de México.* 2022; 158(3): 160-167.

[13] Shahid R, Zeb S, Khan S. Career Choices Among Medical Students of Rawalpindi Medical University, Pakistan: A Comparative Study. *Journal of Community Medicine and Public Health Reports.* 2021; 2(11): https://doi.org/10.38207/JCMPHR/2021/0211205

[14] Loudon. *Medical Care*, 1986(Note 4).

[15] Hudson JC. *The Parent's Handbook.* London; 1842, quoted in Loudon. *Medical Care*, 1986 (Note 4). p.231.

[16] Peterson. *The Medical Profession*, 1978 (Note 5).

Most doctors practised in the region where they had qualified, very often also their birthplace, though the coincidence has weakened over time.[17] A practice could be acquired through purchase, partnership or 'squatting', that is building the practice up from scratch. However, all three routes were problematic. Medicine is often depicted as dependent on self-recruitment with younger sons following their medical fathers.[18] Though dynasties are biographically conspicuous, this stereotype over-estimates the incidence of family-based practice.

A study of the high proportion of physicians' children recruited to medical schools in Norway offered three explanations. Physicians have ample financial means to support their children, they wish to avoid downward social mobility, and their children develop an interest in medicine because of their parents' line of work.[19] This latter view is supported by surveys from the UK National Institute of Career Guidance and Counselling, which has repeatedly identified the value of career advice from families who are doctors.[20] Hence it would appear that the most highly rated sources of useful guidance have not changed for twenty years. Those guiding career choice are the more experienced peers, senior doctors and the medical family.

Unexpected inclinations may also be inherited down the generations.[21] A subjective sift through the eight generations of the author's family pointed to certain shared characteristics.[22] These included physical resilience, stamina and a capacity for hard work, intelligence, a need to be liked, a judicious blend of compliance and rebelliousness, coupled with occasional ruthlessness. All are useful in doctoring, where at an early age the merits of public service and the thrill at the supposed rewards of doing good are imbued. As perceptions are moulded early, the future physician is mostly unaware of the personal costs and the choice of a medical career generally earns the family's approbation. Whatever the residual limitations to an aspiring doctor's natural fitness for the role, environmental influences finally trump them. How much do these parental advantages matter?

Crude nepotism is no longer widespread in the UK. Occupational heritability therefore seems less important than other more overt barriers to social mobility. For many years now medical schools in the UK and elsewhere have sought to encourage gender, ethnicity and socio-economic diversity among entrants. More representative

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[17] Digby A. *The Evolution of British General Practice, 1850-1948.* Oxford: Oxford University Press; 1999. p.68.

[18] Loudon. *Medical Care*, 1986 (Note 4).

[19] Hansen MN. Social background in recruitment of medical students. *Journal of The Norwegian Medical Association.* 2005; 125(16): 2213-15.

[20] National Institute for Career Education and Counselling. Medical Career Advice and Guidance Survey 2014: Initial Findings. London, NICEC, 2014. www.agcas.org.uk/write/MediaUploads/Resources/MCAN%20careers%20information%20resources/National_Institute_for_Career_Education_and_Counselling_(NICEC),_Medical_Careers_and_Guidance_Survey_2014.pdf

[21] Critchlow H. *The Science of Fate.* London: Hodder & Stoughton, 2019.

[22] Gillam S. *Of Patient Bearing – A History of General Practice in Eight Generations.* Hill House Publishing; 2021.

medical school selection is thought likely to improve the quality of the end product.[23] Widening educational opportunities has the certain benefit of reducing economic inequalities. The choice of admission criteria is less important to widening access and increasing social diversity than attracting a sufficiently diverse pool of applicants.[24] [25]

The Selection Alliance of the Medical Schools Council established in 2015 has recorded steady progress enabling many more young people from minority and under-represented communities to apply and enter medical school. There has been an overall increase in the number of entrants to medical school with demographic characteristics associated with social and economic disadvantage, for example, from black and minority ethnic backgrounds, from state schools and from those whose parents do not have higher education qualifications. However, managerial and professional occupations still yield much the greatest number of applications.[26]

Striking changes have taken place in the constitution of medical students over the last thirty years. Most notably, women comprise up to nearly 70% of entrants while students of Asian heritage now make up nearly 40%, though only 18% of the population at large.[27] While they strive to be demographically representative of their local communities, medical schools are becoming steadily less so. Socioeconomic differences in exposure to health-related expertise may contribute to health inequality. A study from Sweden showed that having a doctor in the family raises preventive health measures throughout life, in that the members are more likely to attend for vaccination and screening programmes, avoid smoking, maintain healthier diets, improve physical health and hence prolong life. Two quasi-experimental research designs, medical school admission lotteries and variation in the timing of medical degrees, supported a causal interpretation of these effects. A hypothetical policy that would bring the same health behaviour changes and benefits to all Swedes would apparently close 18% of the mortality gap between the wealthiest and most economically deprived population quintiles.[28]

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[23] Cooper LA, Roter DL, Johnson RL, Ford DE, Steinwachs DM, Powe NR. Patient-centered communication, ratings of care, and concordance of patient and physician race. *Annals Internal Medicine.* 2003; 139(11): 907–915.

[24] O'Neill LO, Vonsild MC, Wallstedt B, Dornan T. Admission criteria and diversity in medical school. *Medical Education.* 2013; 47(6): 557-561.

[25] Younger K, Gascoine L, Menzies V, Torgerson C. A systematic review of evidence on the effectiveness of interventions and strategies for widening participation in higher education. *Journal of Further and Higher Education.* 2019; 43(6): 742–773.

[26] Medical School Council. *Selection Alliance 2019 Report: An update on the Medical Schools Council's work in selection and widening participation*. London: Medical Schools Council, 2019. p.14. www.medschools.ac.uk

[27] Higher Education Student Statistics: UK, 2018/19 – Student numbers and characteristics. Higher Education Statistics Agency, Jan 2020. https://www.hesa.ac.uk/news/16-01-2020/sb255-higher-education-student-statistics/numbers

[28] Chen Y, Persson P, Polyakova M. The Roots of Health Inequality and the Value of Intrafamily Expertise. *American Economic Journal: Applied Economics.* 2022; 14(3): 185–223.

Conclusion

There is enough evidence to support the assertion that in many countries medicine runs in families. At least one in five doctors in most surveys had parents who were doctors, but the reasons for this have changed over time. In recent years there has been a steady increase in the number of entrants to medical school with demographic characteristics associated with social and economic disadvantage. Thus, the student population of today is increasingly diverse. Finally, it is worth recalling that the propensity for medical offspring to follow their parents is not universal. For example, in China the medical profession is regarded as neither prestigious, safe, nor well-paid. Hence, the sardonic saying *yi buguo erdai*: 'no doctor's child becomes a doctor'.[29]

[29] Anon. China needs to train more doctors. *Economist*. 29 August 2020. The phrase *yi buguo erdai* is anglicised Mandarin.

Biographical details

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