ORIGINAL ARTICLE

Is selection for a registrar post in South Africa defined by a preconceived social profile or are candidates selected on academic credentials and work experience?

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Abstract

A current trend towards specialisation exists amongst medical graduates worldwide. Available registrar positions are therefore limited and there is often strong competition for posts. South Africa has a unique political history, and as a result there are government directives promoting equal opportunities in order to correct the inequalities of the past. In other countries, race is considered to be an unimportant factor in residency selection, and registrars are chosen predominantly on merit. In this context, an anonymous survey was conducted amongst registrars in Radiology to determine whether selection for a registrar post in South Africa is defined by a preconceived social profile or whether candidates are selected on academic credentials and work experience. Our results showed that academic credentials and work experience are key criteria for the selection of registrars in South Africa. Gender equality is achieved in medical specialist training departments, but a marked racial misrepresentation exists despite current employment policies. The explanation for this finding warrants further study.

Introduction

A current trend towards specialisation exists amongst medical graduates worldwide. In the United Kingdom, a 2002 survey concluded that 'A total of 22.7% of the medical graduates (28.1% of women, 14.5% of men) expressed a preference for a long-term career in general practice.'[1] Similar statistics are reflected in United States data, which showed 'a decrease in medical student interest in primary care careers (from 35.6% in 1999 to 21.5% in 2002)'.[2]

The popularity of medical specialisation can be attributed to the potential of acquiring certain rewards, such as: prestige; academic exposure, involvement and/or prowess; a higher income; and better working hours or a more 'controllable' lifestyle.

Radiology has become an increasingly popular career choice specialty for medical graduates over the past decade. In South Africa there are presently limited training posts and competition is strong. To quote the Information Letter for Registrar Applicants currently provided by the Department of Radiology at Groote Schuur Hospital, 'We usually have 2 - 5 posts available in February each year, and about ten times as many applicants'.

In most countries, registrars are chosen predominantly on merit. A United States survey, which aimed to determine the most important criteria for selecting candidates for diagnostic radiology residency, found that class rank and medical school grades have the highest rating of importance.[3] On average, 60 candidates are invited to interview for approximately 5 available positions (comparable to the trend in South Africa).

However, the South African political history is unique and the African National Congress has developed labour policies in an attempt to rectify the inequalities of the past. As a result, white male applicants (the minority population group) theoretically experience the most difficulty in obtaining registrar posts in South Africa, not only in radiology, but in all medical specialties.

In this study we hoped to establish whether there is a certain predetermined social (racial and gender) profile for the selection of registrars in South Africa and to what degree they are selected on merit (academic performance and work history).

Objective

To determine whether radiology registrars fit a social 'profile' or whether they fulfil criteria considered to represent academic credentials, work experience and personal effort or tenacity.

Hypothesis

That selection of registrars in radiology in South Africa is based on social criteria (such as gender and race) rather than academic credentials (such as school results, undergraduate results and research publications), work experience (such as years of clinical experience and previous radiology experience), and personal effort and tenacity (such as perseverance and contacting the head of department).

Method

A survey was designed to include 16 questions based on social, academic, work, and personal effort criteria thought to affect selection onto the radiology registrar circuits at 8 accredited institutions in South Africa. These were not categorised on the questionnaire (Table I). The survey was conducted during the 3rd annual pre-exam course of the College of Radiologists (the only dedicated radiology registrar meeting in South Africa) in September 2006. Questionnaires were completed anonymously and collected immediately. The results were categorised and analysed by an applicant for registrar selection and supervised by a radiology consultant.

Results

There were 45 respondents: 35.5% from the University of Stellenbosch, 26% from the University of the Witwatersrand, 15.5% from the University of Cape Town, 8.8% from the University of Pretoria, 6.6% from the

Table I. Survey (September 2006) – Current South African registrars in Radiology *

Age
☐ < 25 years
☐ 25-30 years
☐ 30-40 years
☐ > 40 years

Gender
☐ Male
☐ Female

Race
☐ Black
☐ Coloured
☐ Indian
☐ White
☐ Asian

Postgraduate University
☐ University of Cape Town
☐ University of Stellenbosch
☐ University of Witwatersrand
☐ University of Pretoria
☐ University of Kwazulu-Natal
☐ University of Free State
☐ Medical University of South Africa
☐ Walter Sisulu University

Undergraduate University
☐ University of Cape Town
☐ University of Stellenbosch
☐ University of Witwatersrand
☐ University of Pretoria
☐ University of Kwazulu-Natal
☐ University of Free State
☐ Medical University of South Africa
☐ Walter Sisulu University
☐ Other (e.g. foreign) Please specify

Current year of Registrarship
☐ 1st year
☐ 2nd year
☐ 3rd year
☐ 4th year
☐ 5th year

Undergraduate results (aggregate)
☐ 90 – 100 %
☐ 80 – 90 %
☐ 75 – 80 %
☐ 70 – 75 %
☐ 60 – 70 %
☐ 50 – 60 %

School results
☐ A aggregate
☐ B aggregate
☐ C aggregate
☐ D aggregate

Other qualifications obtained pre-registrarship
☐ ATLS
☐ ACLS
☐ APLS/PALS
☐ Diploma Please specify_____
☐ Other (e.g. Primary MMed/College exam)
Please specify _____

Research/Publications pre-registrarship
☐ Yes
☐ No
If "yes", please specify type of research/publication
_____

Postgraduate clinical experience before Registrar appointment (including internship)
No of years _____

Medical Officer in Radiology before Registrar?
☐ Yes
☐ No
If "Yes", number of years in MO post_____

Radiology faculties applied to for postgraduate study
☐ University of Cape Town
☐ University of Stellenbosch
☐ University of Witwatersrand
☐ University of Pretoria
☐ University of Kwazulu-Natal
☐ University of Free State
☐ Medical University of South Africa
☐ Walter Sisulu University

Time between application and appointment as Registrar
☐ < 6 months
☐ 6 months – 1 year
☐ 1 – 2 years
☐ > 2 years

Contact with Head of Radiology Dept before interview
☐ Personal
☐ E-mail
☐ Telephonic
☐ Written correspondence
☐ None

Availability for Registrar post at time of application
☐ Immediate
☐ < 1 month notice
☐ > 1 month notice

Comments (if possible, include individual criteria which you believe led to your selection as a Radiology registrar)
_____

Thank you for your time and co-operation in completing this survey

*The purpose of this survey is to determine the current selection criteria for Radiology registrars to train at South African faculties. This is a completely anonymous survey and will be used for statistical purposes.

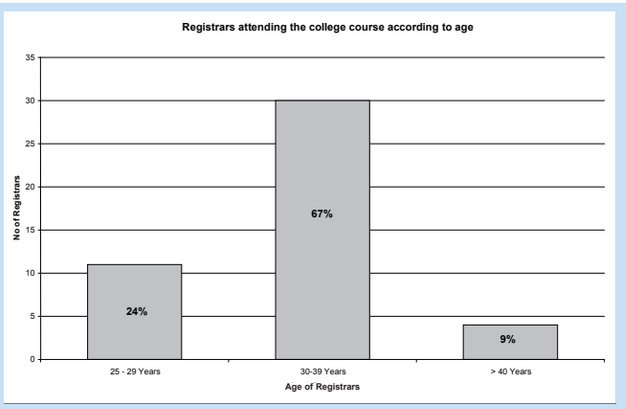

Fig. 1. Registrars attending the college course according to age.

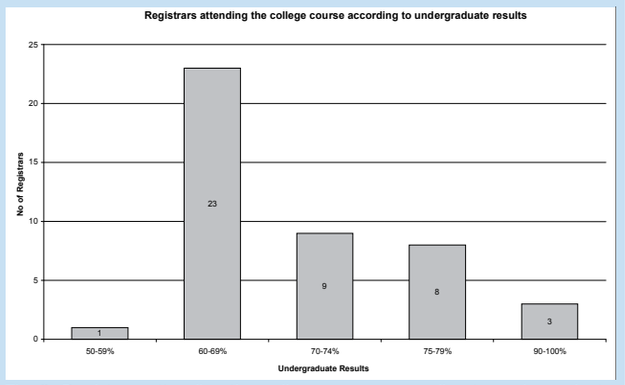

Fig. 2. Registrars attending the college course according to undergraduate results.

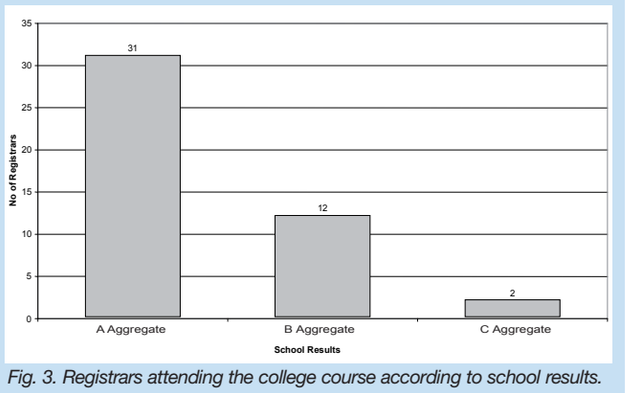

Fig. 3. Registrars attending the college course according to school results.

University of KwaZulu-Natal, and 6.6% from the Medical University of South Africa. The 3rd-year registrars comprised 40% of the respondents, the 4th-year's 22.2%, the 2nd-year's 20%, and the 1st-year's 15.5%.

Social profile

Gender. There was an almost equal incidence of males and females (51% female).

Race. The majority were white (55.5%) followed by Indian (24.4%), black (13.3%) and coloured (2.2%) (2 non-respondents).

Age. The majority (67%) fell between and 30 and 39 years of age (Fig. 1).

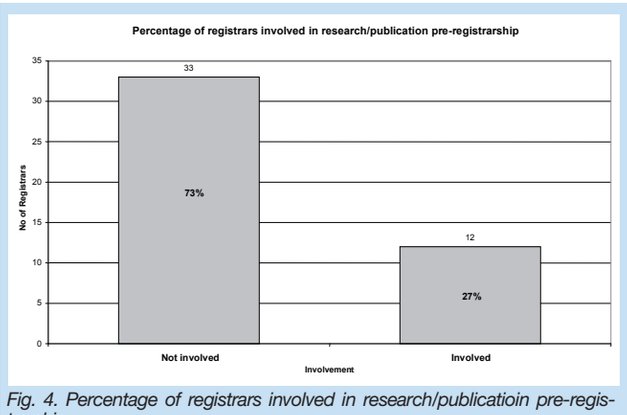

Fig. 4. Percentage of registrars involved in research/publicatioin pre-registrarship.

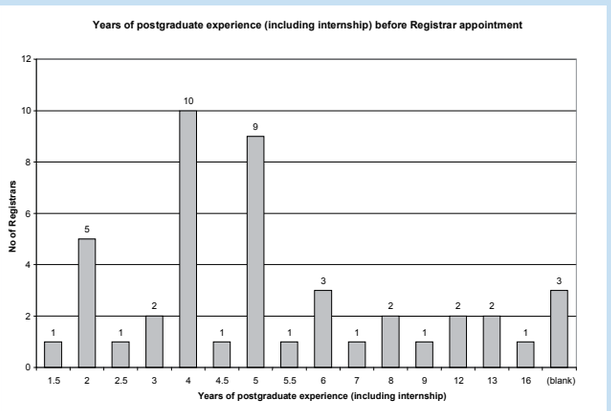

Fig. 5. Years of postgraduate experience (including internship) before registrar appointment.

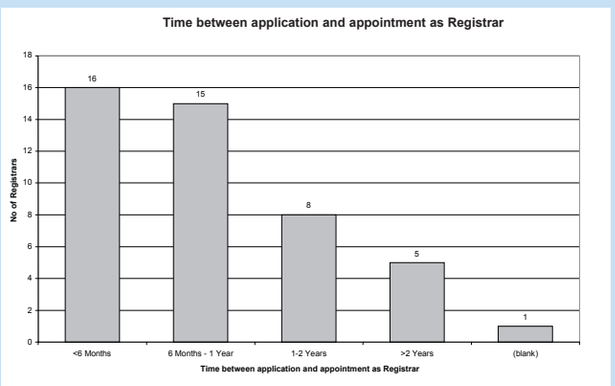

Fig. 6. Time between application and appointment as a registrar .

Academic profile

Undergraduate results. The majority (51.1%) fell into the 60 - 70% aggregate category, and 24.4% fell into the >75% aggregate category (Fig. 2).

School results. The majority (68.9%) had an A-aggregate (Fig. 3).

Research/publications. The minority had published or done research (26.6%) (Fig. 4). (These included case reports and articles in the *South African Journal of Radiology*, posters, a primary health article, audits – 1 in radiology, 1 in neonatal medicine and 1 unspecified, an unspecified chapter within a book, and unspecified theses).

Work experience

Postgraduate clinical experience (pre-registrarship) – 80% had 4 years or more (48.8% had 5 years or more) (Fig. 5)
Experience as Medical Officer in Radiology – 18%.

Persistence and tenacity

Time from first application to appointment – 69% less than 1 year, 11% more than 2 years (Fig. 6).
Contact with head of department – 58%.
Availability to start job – 47% in less than 1 month.

Bias

There are various limitations to this study. Volunteer bias is inherent to every survey; in this survey 57 questionnaires were distributed and there were 45 respondents.[4] Secondly, the information provided by the participants may not be accurate enough to generalise and produce conclusions. Thirdly, only 27.3% of the national group of 165 radiology registrars were represented by the survey. The conference was attended mostly by the more senior registrars as the juniors remained at their various departments to carry the workload. There was a large proportion of registrars from the Universities of Cape Town and Stellenbosch (based on location of the course in the Western Cape), and by the University of the Witwatersrand (the largest number of registrars in training). Therefore the distribution of the sample may under or over-estimate the data.

Discussion

Rationale for the popularity of radiology as a specialty

The shortage of registrar posts in South Africa can be justified, in part, by the increased demand for posts by medical graduates wanting to specialise. The popularity of radiology as a specialty choice can be explained by addressing the rewards of specialisation and discussing their specific relevance to radiology.

1. Academic

As a registrar in a training institution, one has the opportunity to gain valuable knowledge from well-regarded academic consultants and to become involved in funded research projects. Radiology is a rapidly advancing field of medicine, and specialisation in this discipline allows direct exposure to the latest innovative technology.

Academic performance. In the United States, the selection process for registrars usually includes a pre-selection review of medical school performance and an interview phase.[4] Several studies to identify which selection criteria best predict in-training performance of radiology residents have consistently found a lack of correlation between academic performance during medical school or pre-clinical training and later performance during residency training, suggesting that the assessment of non-cognitive abilities is essential for successful recruitment.[4] However, evidence is controversial because some studies have reported the opposite.[4,5] The USMLE (United States Medical Licensing Examination) score remains the most important criterion in selecting applicants for an interview.[4,6]

The academic profiles of our survey participants show that the radiology registrars generally achieved good school and undergraduate results. Most of them (68.9%) achieved an A-aggregate at school and the majority (71.1%) achieved between 60% and 75% aggregate at medical school (24.4% achieved more than 75%).

Academic research and publications. We found that 26.6% of the registrars were involved in research before their registrarship. Whether or not previous involvement in research is predictive of publication potential during radiology residency, remains controversial: a 1992 Canadian study[7] reported that 'academic radiologists were more likely to have performed research, published and presented the results of their research activities, and taught before undertaking the residency program in radiology', while a 2002 American study[8] suggests that 'there was no difference in publication potential between those residents who were academically productive in the past and those who were not'.

Work experience. The majority of the registrars (80%) had more than 4 years of postgraduate clinical experience before commencing their registrarship (48.8% had more than 5 years). The minority (18%) spent time in a medical officer post in radiology before being selected as a registrar. Previous experience in radiology is therefore presumably not a decisive factor in the registrar selection process, but work experience seems to be important.

Our results thus suggest that a registrar applicant's academic and work experience profile is an important criterion in the selection process in South Africa, implying that, as in other countries, merit is considered to be of great significance.

2. Financial

Radiology is amongst the top-earning state-employed medical specialties in the United States.[9]

In 1998, The Human Sciences Research Council of South Africa published *The Remuneration Update,* extracted from the *Graduate Employment Survey* that was conducted in 1997. Radiology was one of the 10 top-earning occupations for 1997. (Four of 1997s ten highest-paid occupations were in the medical field, all in the private sector).[10]

Medical specialists who are self-employed or in private practice earn a higher income, on average, when compared with academic or state-employed specialists. This is demonstrated by a survey studying the factors that influence radiologists' career choices, which showed that 'An exodus from academic radiology to private practice is evident among graduates … with greater financial reward being the primary motivation.'[11]

3. Desirable working hours / lifestyle

Several surveys conducted with medical students in the United States from 1996 to 2004 have addressed the changing influence of lifestyle and income on career choice.[12-14] 'Students' perceptions of specialties existed on a continuum of lifestyle-friendly (e.g. radiology) to lifestyle-unfriendly (e.g. obstetrics-gynaecology).'[12] The authors concluded that perception of 'controllable' lifestyle (determined by income, work hours and years of graduate medical education required), accounts for most of the variability in recent changing patterns in the specialty choices of graduating United States medical students.[13] Changing trends are occurring equally for male and female medical students.[14]

4. Medico-legal risk

Private radiologists in South Africa fall under the 'Private Specialists – Medium Risk' category as ranked by the Medical Protection Society. Their risk of medico-legal action and thus their annual MPS rates are at the lower end of the scale for medical specialists.

Selection criteria for registrars

In most countries, registrars are chosen predominantly on merit. A United States survey,[3] which aimed to determine the most important criteria for selecting candidates for diagnostic radiology residency, found that class rank and medical school grades have the highest rating of importance. A similar study added that research participation, gender and race were the three least important attributes.[15]

Internationally, selection of residents is by application, pre-interview screening and interview. Standardised interviews are used in the United States where 60% of the residency programs use a checklist and 55.4% compile score sheets during interviews. Many American program directors believe that a 'gut feeling' or the 'right fit' of candidates in the program was the single most important factor that determines admission.[4]

At present, the minimum requirements for registrar selection in South Africa are: (*i*) a tertiary qualification (MB ChB) or equivalent; (*ii*) full current registration with the Health Professions Council for Independent Practice; and (*iii*) completion of community service at the time of taking up appointment.

The Department of Health must also comply with the Employment Equity Act, No. 55 of 1998, which states that 'Every designated employer must, in order to achieve employment equity, implement affirmative action measures for people from designated groups', where 'employment equity' means 'equal opportunity and fair treatment in the workplace', 'affirmative action' means 'a policy of correcting past inequalities, for example, hiring people from previously disadvantaged backgrounds in order to create a representative workforce', and 'designated groups' means black people ('a generic term which means Africans, Coloureds and Indians'), women and people with disabilities.[16]

The White Paper for the Transformation of the Health System in South Africa states that 'the personnel profile of the health system should reflect broadly the composition of the relevant labour market at all organisational levels' and that 'the admission of students to training and educational institutions should reflect national demography'.[17]

According to Statistics South Africa, the 2006 mid-year population estimates show that of a population of approximately 47.4 million, 51% (24.1 million) are female. Population group demographics are represented in Table II.[18]

Thus, for a true representation of national demography, the registrar posts in a training department should be represented equally by men and women, 90.8% of the posts should be occupied by black registrars (i.e. African, Coloured or Indian, as per definition in the Employment Equity Act), and 9.2% by white registrars. Otherwise stated, in a department of 10 registrars, there should be 9 black and 1 white, and equal numbers of males and females.

Consequently, it stands to reason that if there is adherence to these employment policies, an applicant's chance of success will vary according to the existing representation of national demography within a department. Such policies theoretically make it less likely for an applicant from a minority population group (e.g. a white male who constitutes a mere 4.6% of national demography) to be selected.

The results of our survey show an equal distribution of gender groups amongst radiology registrars. However, the group was non-representative of national demography in terms of race - 55.5% of the registrars were white and only 39.9% black as per definition in the Employment Equity Act (24.4% Indian, 13.3% African, 2.2% Coloured). This racial misrepresentation in the setting of more than 10 years of democracy in South Africa is a matter of concern, and the rationale behind it warrants further study.

Conclusion

The popularity of medical specialisation is on the increase internationally and available registrar posts are limited. South Africa's political situation is unique, but despite government directives to represent national demographics in medical specialty training departments, the results of this survey have shown that a marked racial misrepresentation prevails. This is a surprising finding following more than 10 years of democracy and 8 years of employment equity in South Africa, and the explanation warrants further study.

Consequently, our results have disproved our hypothesis. It appears that the selection of radiology registrars in South Africa is, in fact, based primarily on academic credentials, work experience and personal effort and tenacity, rather than on a preconceived social profile.

The authors view this survey as a pilot study. We intend to distribute this survey to more registrars during 2007, thus broadening our sample and attaining more accurate results.

Table II. Mid-year estimates for South Africa by population group and sex, 2006

	Male		Female		Total	
Population group	Number	% of total population	Number	% of total population	Number	% of total population
African	18 558 500	79.65	19 104 400	79.4	37 662 900	79.5
Coloured	2 060 000	8.8	2 138 800	8.9	4 198 800	8.9
Indian/Asian	570 200	2.4	593 700	2.5	1 163 900	2.5
White	2 138 900	9.2	2 226 400	9.3	4 365 300	9.2
Total	23 327 600	100	24 063 300	100	47 390 900	100

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