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1996

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Cleaton-Jones, P., Volchansky, A., Copland, L. 1996. Epidemiological profile of graduates of the Wits Dental Faculty 1927 - 1995. Journal of the dental association of South Africa; 51(12): 721-5

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REFEREED SCIENTIFIC ARTICLE
Journal of the Dental Association of South Africa, **51**, 721-725

Epidemiological profile of graduates of the Wits Dental Faculty 1927-1995

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Keywords: epidemiology; Wits Dental Faculty.

SUMMARY

The Wits dental school was first proposed in 1921 but had no premises until a private dental clinic was taken over in 1924 by the University, the same year that the Bachelor of Dental Surgery regulations were agreed to. In 1925 the first dental students registered and a year later, in 1926, the first seven lecturers in dental surgery were appointed. Since the first two graduates in 1927, 1916 dentists have graduated from the school as have 63 oral hygienists. Of the dentists 116 are female and 127 are black, Chinese, coloured or Indian. Regarding postgraduate qualifications, 346 have been awarded by the University on behalf of the dental school. This paper describes patterns in numbers of graduates, proportions registered in South Africa and contrasts registered South African dental school graduates with registered graduates from outside the country. It is clear that the Wits dental school has made a major contribution to South African society.

OPSOMMING

Alhoewel die tandheelkundige skool van Wits in 1921 voorgestel is, het dit geen perseel gehad totdat 'n privaat tandheelkundige kliniek in 1924 deur die Universiteit oorgeneem is nie. In dieselfde jaar is die regulasies vir die Baccalaureus graad in Tandheelkunde aanvaar. Die eerste tandheelkundestudente het in 1925 geregistreer en een jaar later is die eerste sewe dosente aangestel. Sedert die eerste twee graduati in 1927, het 1916 tandartse en 63 mondhigiëniste afgestudeer. Van die tandartse was 116 vroulik en 127 was Swartes, Chinese, Kleurlinge of Indiërs. Betreffende nagraadse kwalifikasies het die Universiteit 346 toegeken namens die tandheelkundige skool. In hierdie artikel word patrone beskryf rakende getalle graduati, vergelykende syfers van dié wat in Suid-Afrika geregistreer is, en van geregistreerde Suid-Afrikaanse graduati tenoor dié van buite die land. Dit is duidelik dat die Wits tandheelkundige skool 'n vername bydrae tot die Suid-Afrikaanse samelewing gelewer het.

When the Wits dental school began is debatable. The background to its establishment and developments in dental education have been described by Van Reenen (1967a,b). As early as 1921 the Witwatersrand University Committee recorded the need for a dental school and unsuccessfully approached the Provincial authorities about establishing a dental hospital. Two years later, in 1923, the dental profession resisted the establishment of a dental school but after a few months had a change of heart. The Johannesburg Dental Society then established the Witwatersrand Dental Clinic, at its own expense, in Bok Street in accommodation arranged by the University. A rival Johannesburg Dental Hospital was also established and the University attempted, but failed, to reconcile the two (Murray, 1982).

At the beginning of 1924 the University decided to offer a full course in dental surgery and negotiated the transfer of the clinic of the Johannesburg Dental Society. Later that year the University decided on regulations and curricula for the Bachelor of Dental Surgery degree and in the following year, 1925, gave authority for the five year degree. An Irish dentist, JC Middleton Shaw was appointed in December 1925 at the medical school to teach dental anatomy, histology and physiology. In 1925 the first dental students were registered.

An important decision was made on the 22nd of October 1925 by the Board of the Faculty of Medicine which authorized the creation of seven lectureships in dental surgery to commence in 1926. These were operative dental surgery, dental surgery and pathology, orthodontia, dental anaesthetics, dental diseases of children, dental radiology and dental ethics. Two further milestones in the history of the dental school were the first dental graduates in 1927 and the establishment of an independent Faculty of Dentistry in 1931.

The establishment of the dental school may then be interpreted as 1921 (idea proposed), 1923 (first dental clinic established), 1924 (BDS regulations and curricula approved), 1925 (first dental students registered and BDS degree established), 1926 (first clinical staff appointed), 1927 (first BDS graduates) or 1931 (independent Faculty of Dentistry established).

The strength of any institution is its people — for the Wit's dental faculty these are the graduates, staff and students. The current paper deals with the graduates from the first in 1927 to those who qualified in 1995. The objective was to use descriptive epidemiology to show patterns in graduate output and in registered dentists in South Africa, and to compare these to patterns of registered graduates from other countries. This broad epidemiological study is confined to those

who graduated from the faculty. It does not include the achievements of individual graduates nor their role in dental education in South Africa.

METHODS

An epidemiological survey was done on faculty graduates using two sources of information. The first was all Wits graduation programmes, from 1927 to 1995, in the University Archives. In the programme the full name of each graduate is given which allowed recording of gender and ethnic group.

The second information source was the annual register of medical and dental practitioners published by the South African Medical and Dental Council. In this the full name of each registered dentist is recorded as well as qualifications and the year that these were obtained. The registers from 1935 to 1995 were examined at five-year intervals to record the total number of registered dentists, plus the numbers of registered dental graduates from Wits. At 10 year intervals, the number of registered graduates were recorded in the following categories, each South African dental school, the United Kingdom and Ireland, United States of America, India and Pakistan, and other (Asia, African states, Australia, Canada, Cuba, Europe, South America, Middle-East and New Zealand). In each instance the first dental qualification obtained determined the country of graduation. Duplicate recording of individuals who had changed a surname was easily avoided because the entries of such individuals under old and new names are clearly demarcated and degree details are provided for only one of the name entries. No account was taken of a dentist's registered address, nor was an attempt made to determine if the individual was in clinical practice since all registered dentists have the potential to practice their profession. This decision reduced possible inaccuracies in evaluation. Because the registers for 1985 and 1990 were missing from the Witwatersrand Medical Library, those for 1984 and 1989 were substituted.

RESULTS

Two students qualified as dentists at Wits in 1927 and by December 1995 the number had risen to 1916. The absolute numbers of graduates are shown in a cumulative distribution in Figure 1. There was a slow increase in graduates until 1947, an average of about five per year, by when 112 people had qualified as dentists. Between 1948 and 1951 no less than 234 dentists qualified, more than double the number of the past 20 years. There was only one graduate in 1952, between 1953 and 1956 168 completed the BDS degree. The rate then reduced to around 25 per year until 1975 when the rate doubled until 1990 when dentists qualifying numbered about 35 per year. The highest number of graduates in a single year, 69, was in 1949.

The first female dentist graduated in 1931 but the second was only in 1940. Thereafter the female graduates were scattered over the years until the 1980s when the rate increased considerably to total 116. In the first 50 years since the first female dentist (1931-1981), 29 female dentists had graduated. In the next 14 years another 87, 75 per cent of the total number of female Wits dental graduates, completed the course. Regarding dentists of black, Chinese, coloured and Indian descent, 127 have graduated BDS, the first Indian was in 1967 and the first black graduate was in 1975. The rate was slightly faster than for females, 25 per cent qualified between 1967 and 1984, 75 per cent completed their degrees within the next 12 years.

To better illustrate the relative rates of qualification the cumulative percentages of total graduates, female graduates and black, Chinese, coloured and Indian graduates are shown

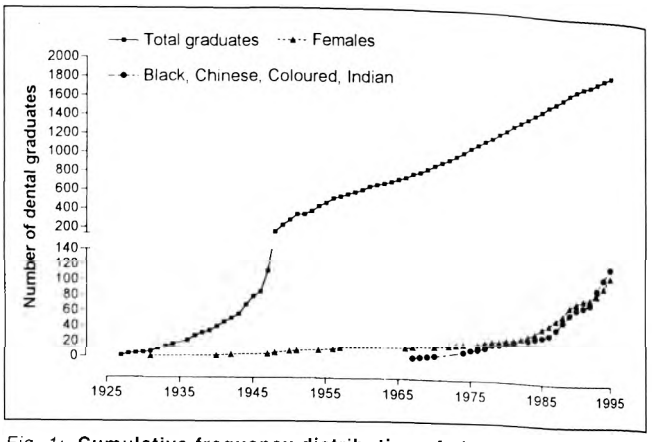


Fig. 1: **Cumulative frequency distribution of absolute numbers of Wits dental graduates. Two scales have been used on the Y axis to help illustrate trends.**

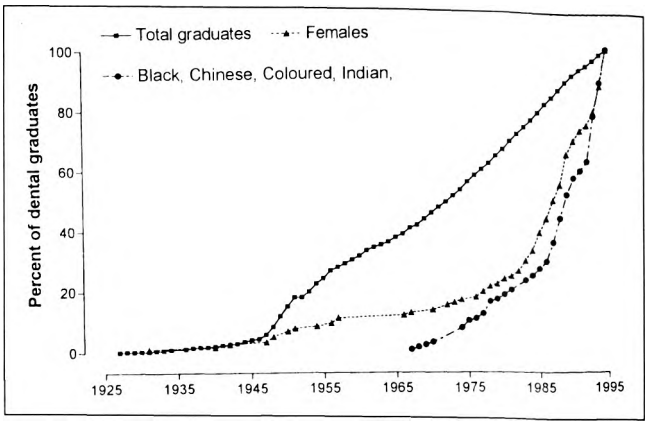


Fig. 2: **Cumulative frequency distributions of relative numbers of Wits dental graduates.**

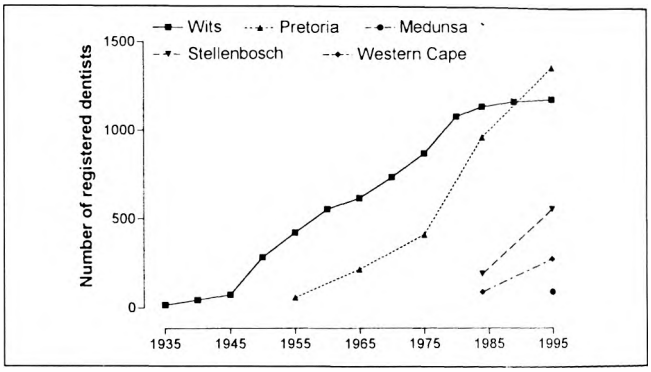


Fig. 3: **Comparison of absolute numbers of registered dentists from five South African dental schools.**

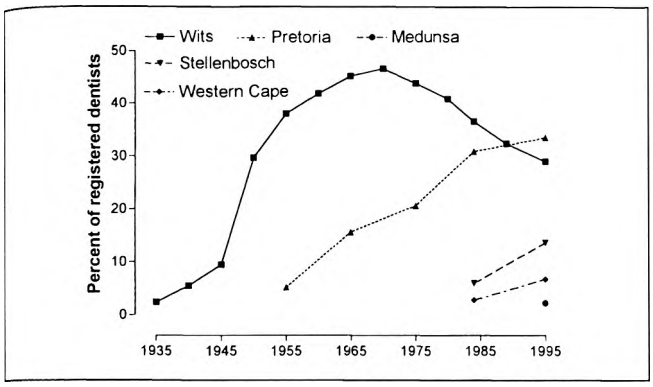


Fig. 4: **Comparison of relative numbers of registered dentists from five South African dental schools.**

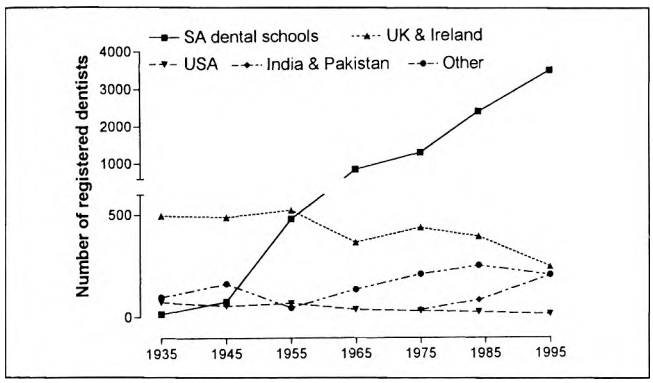


Fig. 5: **Comparison of absolute numbers of registered dentists by country of first dental qualification. Two scales have been used on the Y axis to help illustrate trends.**

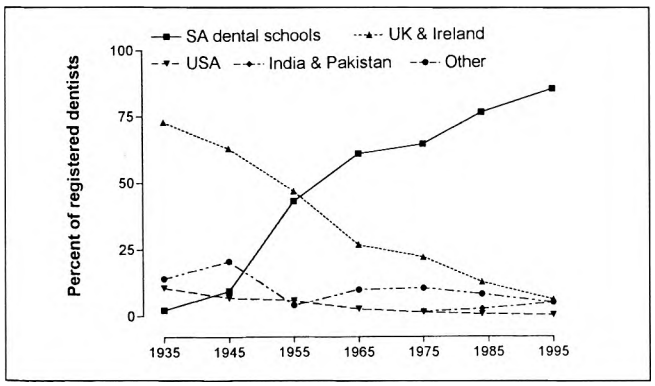


Fig. 6: **Comparison of relative numbers of registered dentists by country of first dental qualification.**

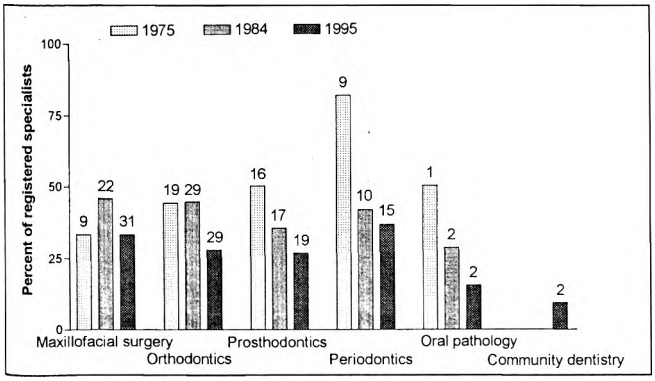


Fig. 7: **Bar chart showing proportions of registered specialists trained at Wits. The numbers above each bar are the absolute numbers of Wits-trained specialists.**

in Figure 2. There are three clear phases in total graduate rates; a low rate until 1947, a rapid increase until 1956 followed by a slightly slower but relatively constant rate. The rapid relative increases in the other two groupings of graduates are clear.

Until 1950 Wits was the only full dental school in South Africa. It was followed by the establishment of full dental schools at the University of Pretoria (1950), Stellenbosch (1968), Western Cape (1974) and Medunsa (1980). The absolute numbers of registered dental graduates from each of these five schools are shown in Figure 3 and the percentages of registered dentists who qualified at the five schools are indicated in Figure 4. Between 1935 and 1945 the numbers of Wits dentists registered slowly mounted followed by a rapid increase until 1980 when the rate slowed. By 1995, Pretoria graduates had become the most numerous group on the dental register. When percentages of registered dentists from the five schools were compared (Figure 4) the initial slow increase of Wits graduates was followed by a rapid increase which gradually slowed once more and peaked in 1970. In that year Wits graduates comprised 46,5 per cent of all dentists registered in South Africa irrespective of where the dentists qualified. Thereafter the relative proportion has steadily diminished. The relative percentage of Pretoria graduates passed that of Wits after 1989 but the rate of increase from Pretoria has slowed. The remaining three dental schools together have contributed low proportions.

For perspective, in Figure 5, the absolute numbers of registered dental graduates from all South African dental schools are compared to graduates from four other geographic groupings. Over time absolute numbers of registered South African dental graduates have increased. Graduates from the United Kingdom and Ireland, and from the USA have decreased. Registered graduates from India and Pakistan are increasing. Graduates from other countries showed a bimodal distribution with peaks in 1945 and 1985. These are now decreasing. In 1995 there were 201 dental graduates under the category 'other'. Twenty-five of these were from African states other than South Africa, 36 were from Western Europe and 71 came from Eastern Europe.

When percentages of all registered graduates are examined (Figure 6) the steady increase in South African graduates reached 84,5 per cent of all registered dentists in 1995. The proportional reduction in UK and Ireland graduates from about 75 per cent in 1935 to 6 per cent in 1995 is striking. There is a gradual increase in percentage of graduates from India and Pakistan.

The faculty offered a BSc(Oral Biology) for a number of years, nine of which were awarded. A Diploma in Oral Hygiene has been available since 1983, in collaboration with the Wits Technikon between 1983 and 1988, 63 individuals have obtained this diploma.

Postgraduate qualifications awarded within the Faculty of Dentistry are as follows: Senior Doctorates — DDS 4, DSc(Dent) 2;

doctorates — MDS 5, PhD 9; Masters degrees MDent — 110, MSc(Dent) 90 and Diplomas — 126. The overall total of postgraduate qualifications is 346, this does not include postgraduate qualifications from other Wits faculties or other institutions.

Registered clinical specialists awarded faculty specialist qualifications total 130. These consist of Community Dentistry 2, Maxillofacial and Oral Surgery 29, Oral Pathology 4, Oral Medicine and Periodontology 15, Orthodontics 47 and Prosthetics 33. The relative proportions of these specialists registered at three time intervals are shown in Figure 7.

DISCUSSION

The patterns shown in Figures 1,2,5 and 6 are an indication of social history in South Africa. Prior to 1927 any South African who wished to study dentistry had to do so overseas, either after one year of basic sciences at a South African University or from scratch. Most went to the United Kingdom and Ireland, possibly through family ties and also because the LDS qualification could be obtained a year earlier than the BDS. This minimized time away from home as well as cost. A much smaller proportion went to the United States and among dentists registered with US degrees before World War II a high proportion had Afrikaans surnames. Was the choice of country influenced by memories of the war of 1899-1902? The marked reduction in registered holders of British degrees over the years is understandable as more people qualified at Wits, as World War II intervened which prevented travel to the United Kingdom and as older dentists, who had qualified in Britain, retired or died.

The slow build up in numbers graduating from Wits between 1927 and 1939 must have been influenced by the as yet unproven degree in the mind of the South African public and the high reputation of overseas degrees. The war years must have interfered with numbers of young people attending University because many volunteered for the armed forces. While all these influences are speculative there is a very clear explanation for the high output of dental graduates between 1948 and 1951. The then Principal of Wits, Dr Raikes, arranged that all ex-volunteers demobilized from the armed forces would have automatic access into the University (Murray, 1982). Through this generous decision classes were large and contained many who might, but for the war, have pursued other careers in business or in the trades. To a lesser extent ex-volunteers swelled classes until 1956. When one of the authors (PC-J) registered as a first year dental student in 1958 the registration form still asked whether one was an ex-volunteer. Disruptions due to the move into the new Oral and Dental Hospital were responsible for the low output of graduates in 1952. In the 1970s, first year intakes were increased to satisfy a perceived need for more dentists in South Africa and intakes were reduced again in the 1990s due to a lesser demand for dentists plus rising running costs, staff cutbacks and inadequate clinical facilities at Wits for student numbers.

The slow increase in female dentists is probably due to societal perceptions of dentistry as a career for women because there has never been any quota or restriction on their admission to the faculty. Possibly the rights movements of the late 1960s and early 1970s played a role to change societal perceptions and to produce a marked increase in female graduates since 1980.

In contrast, graduate numbers of black, Chinese, coloured and Indian South Africans are clearly the result of politics. Such students had studied medicine at Wits since the early 1930s, but the first dental graduate from a community other than white, a South African Indian, was in 1967 and he was followed by only a trickle of compatriots, including the first black graduate in 1975. At the time Wits adhered to obtaining ministerial approval for each admission. In the 1980s admission restrictions were relaxed and numbers increased rapidly. Now access is free of government restrictions.

Figures 3 and 4 contrast the contribution of the five full dental schools in South Africa to registered dentist numbers. It is clear that Wits, by virtue of its length of existence, dominated the total numbers of registered dentists until 1989 when it was overtaken by Pretoria which has had larger graduating classes for many years. When proportions of all dentists registered are studied the zenith of Wits was in 1970 when almost half of all registered dentists were from the faculty. The decline in proportion since then is due to the registration of increasing numbers of graduates from the other four South African schools plus dentists from outside South Africa.

The increasing numbers of registered dentists from outside South Africa are also secondary to politics. The first peak was at the end of World War II as people sought to leave war-ravaged areas. In the second peak political changes in Eastern Europe have allowed graduates of those countries to leave their homelands while internal political change in South Africa, in South African Medical and Dental Council regulations, have permitted limited and even full registration to dentists from Eastern Europe, India and Pakistan. The effect of this is seen from 1985. Migration from other African countries is common today but there are relatively few dentists from other African dental schools who have registered to practice in South Africa. A moratorium on the registration of foreign-qualified dentists currently in force has interfered with the growth pattern.

Postgraduate education began in 1953 (Van Reenen, 1976a) with courses in anatomy, pathology and physiology. Prior to then, graduates had to obtain higher clinical qualifications overseas or do pure research higher degrees. Some part-time specialization was permitted from 1953 to about 1975 but since then all speciality training has been fulltime. Speciality diplomas were gradually introduced as well as the Higher Diploma in Dentistry which was designed for the general dental practitioner. In 1974 all postgraduate diplomas were replaced with master's degrees. The speciality MDent (Master of Dentistry) is available in each of the recognized specialities. The MSc(Dent) (Master of Science in Dentistry) may be fulltime or part-time, by research only or by coursework plus a research project. At the same time, in

1974, a PhD was introduced to replace the MDS(Master of Dental Science) which was a doctoral level degree but with a master title in the style of many British universities. A DSc(Dent) degree for published work only was established as well. The proportions of specialists with specialist qualifications from Wits (Figure 7) is slowly declining as the other South African dental schools train specialists and as individuals trained at Wits choose to obtain College of Medicine fellowships rather than the MDent degree of their university.

CONCLUSIONS

This epidemiological study has clearly shown that Wits dental school has made a major contribution towards dental manpower in South Africa between 1926 and 1996.

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The Festschrift Committee gratefully acknowledges the financial support of the following colleagues:—

- Dr I Amra
- Professor PE Cleaton-Jones
- Dr AB Davidson
- Dr H Heydt
- Professor J Lemmer
- Dr H Levenstein
- Prof J Lownie
- Professor R Lurie
- Dr FMA Pinheiro
- Dr G Powter
- Dr C Robertson
- Dr R Sheldon-Jones

— and —

- Dentistry Wits
- Dental Research Institute, Wits
- Department of Conservative Dentistry, Wits
- The Research, Education and Development Fund of the Dental Association of South Africa.

This *JOURNAL* could not have been produced without their financial support.