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Author

Laloo, R, Ayo-Yusuf, OA, Yengopal, V

Published

2008

Journal Title

South African Dental Journal

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# Early-phase Dental Students' Motivations and Expectations Concerning the Study and Profession of Dentistry

SADJ May 2008, Vol 63 no 4 p216 - p220

**R Lalloo:** BChD, BSc Med Hons (Epidemiol), MChD (Comm Dent), PhD (London). Professor, Department of Community Dentistry, School of Dentistry, University of Limpopo, Medunsa Campus.

**OA Ayo-Yusuf:** BDS, MSc (Odont), DHSM, MPH. Senior Lecturer, Department of Community Dentistry, School of Dentistry, University of Pretoria.

**V Yengopal:** BChD, BSc Hon (Epi & Biostats), MChD (Comm Dent). Senior Specialist, Division of Public Oral Health, University of Witwatersrand

## Corresponding Author:

**Prof R Lalloo:** Tel: 012-521 4848, E-mail: ratilal.lalloo@ul.ac.za

## SUMMARY

This study investigated the career choice and aspirations of early phase dental students in the four dental schools in South Africa, namely the University of the Western Cape (UWC), University of the Witwatersrand (Wits), University of Limpopo (Medunsa) and University of Pretoria (UP). Willing participants completed a self-administered questionnaire ( $n=184$ ). Motivations for entering a dentistry programme were similar across race and university, with wanting a secure job most often stated as an important factor. For a third of respondents, dentistry was not a first choice. Amongst the White students, it was a first choice for 82% compared with 59% amongst Black Africans. Expected income five-years after graduation also differed significantly across race and university, with White and UP students expecting to earn considerably higher than the others. About 36% of students were concerned about the levels of personal debt related to studying, with the White and Asian students less concerned. Those who expected lower levels of income from the profession were more concerned about personal debts. Most students planned to enter general dental practice (GDP) after community service, almost all White and Wits students expressed this intention, compared with only 35% of Black Africans and 39% of Medunsa students. Orthodontics and Maxillofacial & Oral Surgery were the most popular specialities of choice. The professional attribute "Has a friendly manner and good relationship with patients" was ranked high most often. In conclusion, career advice may not need to be tailored differently for the different racial groups. There is however a need for further investigations on how to address the concerns of financial security which may be realised by the practice of dentistry, and in particular the racial disparities observed in expectations of the profession. This study further highlights the need for government financial assistance for students from under-represented groups.

## INTRODUCTION

Most investigations on the career choices and aspirations of dental applicants and students have been carried out in the United Kingdom and the United States.<sup>1-6</sup> These studies, including one from South Africa,<sup>7</sup> have highlighted the reasons for applicants choosing dentistry as a career as well as their

aspirations for dentistry as a profession. A consistently popular reason for pursuing a dental career is 'helping and working with people' (service to others). Other popular, but more variably endorsed reasons include ease of employment, job security and the potential to earn a good income.

The need for dental faculties in South Africa to attract quality students from disadvantaged backgrounds, particularly from working class families, and Black African and Coloured communities is well established.<sup>8-9</sup> However, less clear are the motives for the choice of dentistry by these population groups.\* Knowing the career choices and aspirations of current early-phase dental students would be useful, as the information gathered from such investigations would be important in developing a marketing strategy aimed at attracting students from disadvantaged backgrounds to apply for dentistry and to successfully pursue a career in the profession.

The aim of this study was to investigate the career choice and aspirations of early phase dental students in the four dental schools in South Africa, namely the University of the Western Cape (UWC), University of the Witwatersrand (Wits), University of Limpopo (Medunsa) and University of Pretoria (UP).

\*Prior to 1994 all people in South Africa were classified African, Indian, Coloured or White according to the Population Registration Act of 1950. The use of these terms does not imply the legitimacy of this racist terminology, but is necessary for highlighting the impact of the former apartheid policies on people in this country.

## METHODS

This is a cross-sectional, descriptive study of the opinions of early phase dental students at the four dental schools in South Africa. A questionnaire similar to the one used in the United Kingdom<sup>1</sup> was self-administered by the willing participants. At UWC and Wits the survey was conducted amongst first year students in the second half of 2005. At Medunsa and UP the survey was conducted amongst second year students in the first half of 2006. Participation was voluntary and all information collected was kept anonymous and confidential. Willing participants had the right to withdraw at any stage from the study. The Research and Ethics Committee at the Faculty of Dentistry, UWC, approved the study protocol.

Table 1: Percentage racial background by university of early phase respondents

	UWC (N=66)	Wits (N=35)	Medunsa (N=33)	UP (N=45)	Total (N=179)*
Asian (N=58)	47	57	6	11	32
White (N=50)	17	17	6	69	28
Black African (N=54)	11	26	88	20	30
Coloured (N=17)	26	0	0	0	10

Note: Due to rounding off of percentages, the data do not always add up to 100%; applies to all tables. \* Five (5) participants had missing data on the variable reported in this table.

Table 2: Percentage who strongly agreed or agreed with reasons for career choice by race

Reasons for choosing dentistry	Overall	Asian	White	Black African	Coloured
I wanted a secure job	94	95	98	94	77
I wanted to help people	92	89	92	96	88
Dentistry will enable me to work in an independent way	92	91	96	93	82
I wanted to work in health care	91	91	86	94	94
I find dentistry itself very interesting	86	79	92	87	88
I wanted a well-paid job	80	85	86	69	77
I enjoy working with my hands	80	79	88	74	77
The profession has a high status	80	76	84	83	71
A friend or relative recommended it *	50	69	34	43	50

\* Significant at the  $p < 0.05$  level

The questionnaire asked students about reasons for choosing dentistry as a career, aspirations for their career and assessed opinions on the important attributes of a dental professional. The data was captured and analysed using the SPSS software package. The information gathered was compared by race and university. Statistically significant differences were identified by applying a Chi-square test for categorical variables and t-test for quantitative variables. A  $p$ -value  $< 0.05$  was considered statistically significant. Where no statistically significant differences were found between groups, only pooled results are presented.

## RESULTS

The response rates at the four institutions ranged from 70% to 90%. There were no significant differences in the racial or gender profile of the non-respondents in the participating universities. One hundred and eighty four students completed the questionnaire, 70 at UWC, 35 at Wits, 33 at Medunsa and 46 at UP. Of these 66% were female. The age of the respondents ranged from 17 to 33 years, with a mean age of 19.9 years ( $SD=2.33$ ). The racial distribution of respondents differed significantly by university (Table 1). More than a half (57%) of Wits students were Asian, more than two-thirds (69%) of UP students were White compared with 88% of Medunsa students being Black African.

A fifth of respondents reported having a dentist in the family (mainly cousins and uncles) and 39% reported a doctor in the family (again mainly cousins and uncles). This differed by race, with 9% of Black African students reporting a dentist in the family, compared with 18% of Coloured, 20% of White and 43% of Asian students. Having a doctor in the family also differed significantly, with 57% of Asian students reporting a doctor in the family, compared with 29% of Coloured, 33% of Black African and 26% of White students. There were 11 parents who were dentists (10 of them fathers) and nine doctors (8 of them fathers). Less than a third (29%) of respondents reported shadowing a dentist in the workplace, and when it had occurred it had been for a few days. Only 6% of Black

African students reported shadowing a dentist compared with about a third of students in the other groups.

Table 2 shows the percentage distribution of responses to various statements regarding their motivation to study dentistry. More than 75% of respondents strongly agreed or agreed with all the statements except "A friend or relative recommended it". This motivation was also the only one that differed significantly by race and university with 69% of Asian students agreeing compared with 50% of Coloured, 43% of Black African and 34% of White students. At UWC, 59% of respondents agreed with this statement compared with 52% at UP, 43% at Medunsa and 37% at Wits.

For almost a third (32%) of early phase dental students, dentistry was not a first choice. Of those having a different first choice of study, most wanted to do medicine or physiotherapy. The percentage of students reporting dentistry as a first choice differed significantly by race and university. By race, the percentages were 59% of Black Africans, two-thirds of Coloured and Asian students and 82% of White students. By university, the percentages were 58% at Medunsa, 62% at UWC, 72% at UP and 86% at Wits.

More than a third (36%) of respondents were concerned about levels of personal debt that could accrue over the five-year course of study, but this differed significantly by race and university. Of the White students 45% were not concerned with debt compared with 40% of Asian, 25% of Coloured and 24% of Black African students. However, of the Black African students, 43% were ambivalent in terms of their response about personal debt that may accrue over a five-year course. At Wits only 9% were concerned, compared with 30% at Medunsa, 31% at UP and 56% at UWC.

Most respondents (75%) considered themselves to be very to extremely ambitious. Few felt success was due to luck rather than ability. Most (90%) were very or extremely confident of achieving their professional goals. Very few were unhappy or had any regrets with choosing dentistry as a career. Rea-

**Table 3: Percentage distribution of speciality choice by race**

Specialty	Overall	Asian	White	Black African	Coloured
Orthodontics	41	48	39	31	47
MFOS and Oral Surgery	32	28	25	40	35
Oral Medicine & Periodontics	11	12	16	8	6
Community Dentistry	7	8	2	13	0
Prosthodontics	7	0	16	4	12
Oral Pathology	3	3	2	4	0

**Table 4: Ranking in top three attributes of a professional dentist by university (%)**

	Overall	UWC	Wits	Medunsa	UP
Ensures patients participate in treatment decisions	45	50	50	36	40
Has a good business sense *	23	13	46	29	19
Keeps up to date with new developments in dentistry	41	32	39	48	54
Is technically competent	51	52	61	52	42
Has a friendly manner and good relationship with patients	71	74	57	62	81
Is able to manage staff effectively	16	17	11	24	16
Feels strongly about the oral health of his/her community	53	65	36	52	49

\* Significant at the  $p < 0.05$  level

sons highlighted for not being satisfied were “course was too long”, “exposure to diseases”, “hard work”, “lots of debt” and “course not being stimulating”.

Most (80%) respondents planned to work full-time. The expected annual income on graduation ranged from R24 000 to R2 800 000; with a mean income of R213 000. The expected annual income 5 years after graduation ranged from R30 000 to R3 840 000; with a mean income of R459 000. This expected income after 5 years differed significantly between White (R635 000) and Black African (R341 000) students. Asian and Coloured (small sample) students also expected lower incomes, but did not differ significantly - R480 000 and R309 000 respectively. The expected income after 5 years also differed significantly by university. At UP the mean expected income was R648 000, compared with R511 000 at Wits, R371 000 at Medunsa and R360 000 at UWC. The expected income also differed in relationship to the concerns related to personal debts incurred during the course. Those concerned estimated a mean income after 5 years of R325 000, compared with those who were not concerned R599 000. For students who were ambivalent about personal debts, the expected mean income was R458 000.

Twenty percent of respondents were either not aware or were unsure of a career pathway. More than two-thirds (69%) planned to go into general dental practice (GDP) and 16% into community dental practice (CDP). About 16% planned to go either into academics or research or a combination of activities. By race almost all (96%) of the White students planned to enter GDP upon graduation, compared with 76% of Asians, 65% of Coloured and 35% of Black African students. By university, 91% of respondents at Wits planned to enter GDP, compared with 74% at UP, 68% at UWC and 39% at Medunsa. More than one third (36%) of Medunsa students planned to enter CDP.

Forty one percent of respondents planned to specialise in Orthodontics and 32% in Maxillo-Facial & Oral Surgery (MFOS). The choice of speciality differed slightly by race (Table 3) and university. MFOS was most popular amongst the Black African students and Orthodontics in the other groups. More than half (51%) of Wits students wanted to specialise in Orthodontics, compared with 45% of Medunsa students wanting to specialise in MFOS. At UWC 41% and 29% planned to specialise in Orthodontics and MFOS respectively. At UP these percentages were 34% and 25%.

Table 4 shows the percentage ranking of various attributes of a professional dentist by university. Seventy one percent of the sample ranked highly “Has a friendly manner and good relationship with patients”. Half of respondents ranked “Feels strongly about the oral health of his/her community” and “Being technically competent” in the top three. About a quarter of the respondents ranked “Has a good business sense” and a fifth “Is able to manage staff effectively” in the top three attributes of a dental professional. There were few significant differences by race and university. The ranking of “Feels strongly about the oral health of his/her community” differed significantly by race. This is due to almost all (94%) of Coloured (smallest sample group) ranking this attribute high, compared with 54% of Asian, 50% of Black African and 40% of White students. “Has a good business sense” was ranked significantly differently by university. At Wits 46% ranked this high, compared with 29% at Medunsa, 19% at UP and 13% at UWC.

**DISCUSSION**

This study allows the comparison of responses from all the dental schools training dentists across South Africa. The four universities had distinctly different demographic characteristics of students. This finding is consistent with previously reported observations of under-representation of the

Black African and the Coloured groups in some of the dental schools.<sup>8,9</sup> The underlying principle of student intakes in post-apartheid South Africa is based on the idea that previously disadvantaged groups be given access to professions and careers that have significant imbalances in demographic profiles as regards race. The results of this survey have shown clearly that much more will have to be done to encourage students from previously disadvantaged backgrounds to enter the profession. In terms of race, the intake of Asian students is significantly higher at UWC and Wits. Similarly the intake of White students at UP and Black students at Medunsa far outweigh intake of students from the other race groups. Of these universities, only Medunsa's student profile appears to reflect the demographic profile of the South African population. Wits and UP are located within Gauteng Province (population 8.8 million) that has the following racial breakdown in terms of population size: Black African 74%, Coloured 4%, Asian 3% and White 20%. The demographic profiles of Wits and UP differ significantly from these census figures implying that these universities have not done enough to ensure that the demographic profile of their students reflect that of the broader community. There are other factors such as number of applicants from the various race groups, quality of matric passes, academic potential, etc., that may contribute to this imbalance but the universities themselves should do more to attract and encourage a mix that reflects the profiles of our communities. The UWC student mix is also not reflective of the demographic profiles in Western Cape Province. While progress is acknowledged with progressive intakes,<sup>8</sup> more incentives would have to be created to bring intake percentages at Wits, UWC and UP closer to 50% for previously disadvantaged students. Although applications by Black Africans to the undergraduate course have been increasing, it is important to keep up the momentum in the drive to attract Black African applicants for the dental course. This study provides valuable insight into what might have motivated the early-phase dental students to enter the dental profession and what they expect from the profession.

With other racial groups at least twice as likely than the Black African students to report family involvement in dentistry and the latter also least likely to have had an experience of work shadowing a dentist, relative unpopularity of a choice of dentistry by Black Africans may in part be related to a lack of social inclusion. Although, in general, the proportion of students with family involvement in dentistry/medicine was similar to that of a UK cohort,<sup>1</sup> there was by comparison double the proportion of students in the current cohort who affirmed that they had received recommendations from friends/family to study dentistry (50% compared with 25%). Whereas this study, like previous similar studies,<sup>1,5</sup> showed that recommendation from friends/family was the least common motive for choosing to study dentistry, our results nevertheless suggest that this factor may be playing a more important role in the South African cohort than in that of the UK cohort. Therefore, marketing of the dental course should be directed not only at potential students, but also at the public at large.

While 92% of the UK cohort had the experience of work shadowing a dentist before applying to the course, only 29% of

the current cohort had such an opportunity. This observation could account for the relatively lower proportion of students in the current cohort who had selected dentistry as first choice when compared with the UK cohort (68% compared with 89%). It also supports the need to enrol the support of practicing dentists (especially from disadvantaged communities) in the drive to attract more applicants from those communities. It is pertinent to note that even though Medunsa had the highest proportion of Black African dental students, the university also had the highest proportion of students who had not made dentistry their first choice. Most of these respondents had indicated that medicine was their primary choice. Indeed, the consequence of this preference for a medical career may become a challenge for future recruitment to dentistry, since the shortage of doctors may lead to a rise in the intake of medical schools which would mean that more potential dental students would be lost to the medical faculties. Thus, even Medunsa cannot afford to be complacent. Dental schools should be alert to identifying and recruiting students from those sectors previously under-represented.

Consistent with the findings from a previously published study of South African dental students at one of the dental schools,<sup>7</sup> the two most popular motives identified in this paper for choosing to study dentistry were "wanting a secured job" and "wanting to help people (service to others)". The findings of the current study suggest that motives for choosing to study dentistry may not have changed over time despite the changing demographic profile of dental students. This view is further supported by the fact that the current study showed no significant difference in motives across the various racial groups. This suggests that career advice may not need to be tailored differently for the different racial groups since they are attracted to dentistry for somewhat the same reasons. Wanting to help people (service to others) remains the most popular recurring motive for students across many countries choosing dentistry. Eighty percent agreed that "Wanting a well-paid job" was a motivation for studying dentistry. This is higher than the 53% who expressed this motive in a comparable UK cohort. When this is combined with the fact that "wanting a secure job" was ranked the highest priority, it is conceivable that those who had not chosen dentistry as first choice may have seen dentistry as providing less financial security when compared with medicine or the other alternative primary choices reported. This view is supported by the observation that students at UWC and Medunsa not only had the lowest proportion of those who had selected dentistry as primary choice, but they also expected a lower income, when compared with student opinion gathered at the other two universities. This suggests that any marketing strategy to promote dentistry as a first choice must address the issue of financial security in relation to the dental profession. It is pertinent to note that a recent report suggests a continuing decline in the proportion of medical scheme (private health funders) payout to dentistry.<sup>10</sup>

Racial disparities observed with regards to the levels of concern about personal debt that may accrue in the course of study of dentistry and the expected levels of income from the profession, somewhat reflected historical trends in the levels

of poverty among the various population groups – with the Whites and Asians being in a better socioeconomic position than Coloureds and Black Africans.<sup>11</sup> Although UWC and Medunsa students had similar expectations of income from the profession, UWC students had a greater concern about levels of personal debt. This may account for the fact that UWC students were more likely to opt for a somewhat more financially lucrative career in private GDP compared with Medunsa students' choice of a career in CDP. On the other hand, Medunsa students were most likely to plan a career in CDP as opposed to GDP, even though they had similar levels of debt concern as the UP students. It may be a reflection of the demographic profile of the students in these two schools, considering that almost all the White students in this study intend to enter GDP upon graduation compared with only 35% of the Black African students. Similar racial differences in career plans have been previously reported among American dental students.<sup>12</sup> Although our study did not provide direct evidence, it may also be that the Medunsa students felt indebted to the public as a result of receiving government bursaries as opposed to UP students who may have received bursaries from private institutions. Either of these views supports the government policy of providing financial assistance to potential dental students from under-represented communities irrespective of their choice of university. In addition, the fact that those who expect the least income were the most concerned about personal debt related to studying should also support a policy that will be directed at assisting students and new graduates to pay back study loans granted under the proviso that they work in the public service for an agreed period of time. The latter strategy – “loan forgiveness scheme” - is indeed one of the programmes being pursued successfully in the US, with the objective of increasing the recruitment of minorities into the dental/medical schools and getting health practitioners to serve in under-served areas.<sup>13-14</sup>

The fact that the majority of the students plan to specialise in either Orthodontics or MFOS may be related to the perceived job opportunity associated with and/or needs of these specialties not only in the private sector, but also in the public health sector. The career plan may also reflect a perceived higher financial return associated with these specialties compared with the others.

Despite the differences in the expected levels of income and career choices (CPD or GDP), most of the early phase students were very confident of successfully achieving their professional goals through their personal abilities. With regards to the expectations of a professional dentist, it is gratifying to note that the majority of our dental students ranked highly interpersonal relationships with patients as an important attribute, with no significant difference detected across all the dental schools and race groups. Although a majority of students ranked highly “having a strong feeling about the oral health of one's community”, it was noted that this was less highly rated by Wits students. This may be related to the fact that Wits students were also most likely to want to pursue a career as a GDP and also hold an expectation of relatively high income from dentistry. This is opposite to the expectation of students at UWC and Medunsa, with the majority rank-

ing more highly the importance of community-orientation or concern and expecting relatively much lower income from dentistry. Similarly, Wits students' higher ranking of having business sense as an important attribute of a professional dentist may be related to their higher income expectation. On the other hand, although UP students also expected a relatively high income from the profession they ranked having business sense low. This coupled with the fact that UP graduates ranked being friendly to patients the highest suggests that these students may expect to earn their income not as a result of their business skills, but on their interpersonal skills.

The limitation of this study lies in the reliance upon self reporting. A follow-up qualitative inquiry could have provided additional insight and understanding of the response patterns observed. However, to the extent that this study aimed at establishing perceptions, this complementary approach to the study may not have significantly influenced the conclusions reached in the current study. The good to excellent response rate provides support for generalisability of the findings. This study is indeed the first to detail the expectations of South African dental students from the teaching institutions, using a nationally representative sample. These opinions of the same cohort could again be investigated in the senior years, to assess possible changes during the course.

In conclusion, career advice may not need to be tailored specifically for the different racial groups. There is, however, a need for further investigations on how to address concerns of financial security that can be provided by the practice of the dental profession and in particular the racial disparities in the levels of expected income and concern about personal debt that may accrue in the course of the study of dentistry. This study highlights the need for government initiatives to continue to provide financial assistance to dental students from under-represented groups. This effort would not only increase the enrolment of the under-represented groups in the dental schools, but it may also increase the proportion of graduates working in the public service.

## ACKNOWLEDGEMENT

Dr MJP Harris, for her assistance in carrying out the survey at the University of Limpopo (Medunsa campus).

Declaration: No conflict of interest was declared

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*Additional references (5-14) are available on [www.sadanet.co.za](http://www.sadanet.co.za)*