

# Motivation for a career in dentistry: the views of dental students in the United Arab Emirates

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**Objectives:** To investigate final-year dental students' perceived motivation for choosing dentistry as a professional career at one dental school in the United Arab Emirates (UAE). **Method:** Final-year dental students of Ajman University ( $n = 87$ ) completed a questionnaire. Univariate and multivariate analysis of the data were undertaken using statistical software. **Results:** A response rate of 82% ( $n = 71$ ) was achieved, 65% of whom were female. Students ranged from 21 to 29 years of age. Motivation to study dentistry was led by a 'desire to work in health care' (93%), 'wish to provide a public service' (88.7%) and because 'degree leads to a recognised job' (84.5%). Males were significantly more likely to report 'high income' (84% *vs.* 67%;  $P = 0.01$ ) and females 'influence of family' (80% *vs.* 60%;  $P = 0.02$ ) as motivating influences. The reliability and internal consistency of the instrument as calculated by Cronbach's alpha was 0.82. Eight factors explaining the 71% of the variation were: 'professional job factors' (11.7%), 'experience and advice' (9.8%), 'business and financial with independence' (9.7%), 'careers, advice and possibilities' (8.9%), 'knowledge and job security' (8.8%), 'health care, people and public service' (8%), 'family and friends' (7.2%) and 'career in dentistry' (6.9%). Gender was a significant predictor of 'business and financial' factor ( $b = -0.76$ ;  $P = 0.003$ ) and age for 'careers in dentistry' ( $b = -0.18$ ;  $P = 0.03$ ). **Conclusion:** Students are motivated by a wide range of factors similar to those found in other studies; however, business features and family influences were significantly associated with gender.

**Key words:** Dental student, motivation, dental school, professional career

## INTRODUCTION

### Demographic characteristics

The United Arab Emirates (UAE) is a federation of seven autonomous Emirates with a total population of around 5.3 million<sup>1</sup>. In addition to UAE citizens, there are several other expatriate ethnic groups (e.g. Indians, Pakistani, Bangladeshi, Egyptian, Jordanian, American, British, Iranian, and other nationalities).

### Oral health services

The Ministry of Health has taken the responsibility of establishing national standards to guide health care provision and meet the needs of individuals. Government dental services are distributed all around the UAE with predominantly a curative emphasis and provided at three levels. These levels are<sup>2</sup>:

- Primary health care centres and school clinics, which provide comprehensive dental and oral health care services
- Specialised dental services served by eight dental centres distributed all over the country
- Specialised hospital dental services.  
Patients need to contact the primary health centres (PHCs) to utilise the government dental services and access to secondary and tertiary care takes place either directly (in case of emergencies) or by referral from the PHCs.

### Prevalence of caries

The prevalence of dental caries among the pre-school and young children in the UAE is particularly high. The most recent study by Hashim *et al.*<sup>3</sup> reported that 76.4% of children aged from 5–6 years had experienced dental caries, with an average dmft (decayed,

missing, filled teeth) of 4.5, suggesting that the UAE is below the WHO target of 50% caries-free by the year 2000 for 5-year-old children<sup>4</sup>.

### Dental workforce and their challenges

All dentists practicing in the UAE have traditionally qualified abroad as there were no dental schools in the UAE until the establishment of the first private dental school by Ajman University in 1997<sup>5</sup>. Since 1997, three other dental schools have been accredited by the Commission for Academic Accreditation in the UAE, which has led to an increase in number of new dental graduates<sup>6</sup>. The number of dentists has almost quadrupled from 777 in 2000 to 2,916 in 2010, with 70% of them working in the private sector<sup>7</sup>. In parallel with this growing number of dentists, new dental graduates have reportedly been facing challenges such as the limited number of vocational training centres and a scarcity of post-graduate opportunities available in the local area.

The issues confronted by the current dental workforce make it important to understand the motivation of the new students in choosing dentistry as a profession. This study builds on the work by Gallagher *et al.*<sup>8</sup> in the UK which highlighted the significance of exploring the motivations and career expectations of the new dental workforce to arrive at an informed decision regarding the future. Therefore, the aim of this study was to investigate final-year dental students' perceived motivation for choosing dentistry as a professional career in relation to age and gender at one dental school in the UAE.

### METHOD

All 87 final-year dental students registered at the College of Dentistry in the Ajman University during the summer training of the academic year 2006–2007 were invited to participate in this study. The information sheet advised students that returning a completed questionnaire implied their consent for this research and subsequent publication. The study was conducted in full accordance with the World Medical Association Declaration of Helsinki. The Ethics committee of Ajman University's College of Dentistry approved the protocol for this study (Ref: Dental/7095/2007). The instrument used in this study was the one developed by Gallagher *et al.*<sup>8–10</sup> in the UK, but adapted to take account of the context (demography and career opportunities), and piloted on 10 fourth-year dental students to check its suitability for the UAE students. The instrument included both open-ended and closed-ended questions and contained five main sections including: motivation for choice of professional career, short-term career options and influences, long-

term career options and influences, views on state health care and, finally, demography of respondents. A five-point Likert scale was used to examine the motivation section from 'very important' to 'not important'. Students were given by a letter of invitation to take part in the study and were provided with an information sheet regarding the study. During the invitational session, the study was explained to the dental students and the questionnaires were distributed. Students were given the time and opportunity to complete and return the questionnaires during this session. Reminder letters were provided to the students who could not attend this session and were followed up using the Dillman approach<sup>11</sup>.

### Statistical analysis

Survey data were entered onto computer and analysed using the Statistical Package for Social Sciences (SPSS v20; IBM Corporation, Chicago, IL, USA). Descriptive analyses were carried out to summarise the sample characteristics and baseline information. A chi-square test was used to test the association between qualitative variables and factor analysis to detect the latent factors associated with students' career choice. The factor scores were analysed for age and gender effect using multivariate regression analysis.

### RESULTS

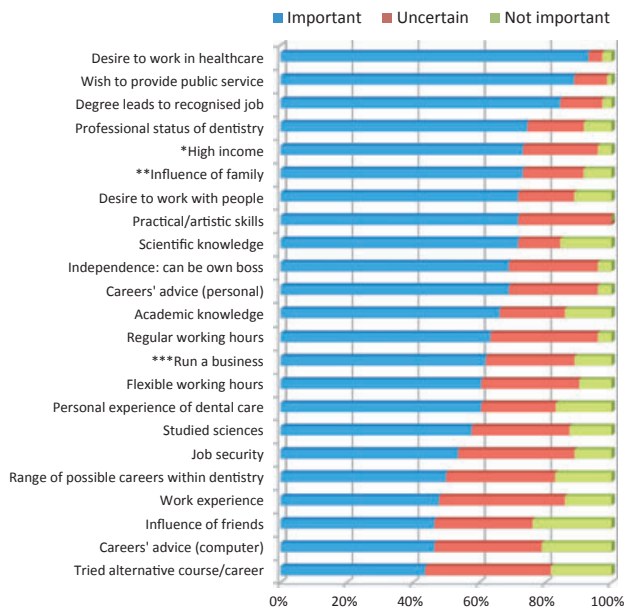
This study presents the findings on motivation of the students to choose dentistry as a profession; the results for the short-term and long-term career expectations of the students will be reported in a separate paper.

#### Response and demography of respondents

Out of a population of 87 final-year dental students, 71 responded, giving a response rate of 82%. The age of the respondents ranged between 21 years and 29 years, with a mean of 23.8 and a mode of 23 years. This included 10 students (14%) aged 26 years and older. Two-thirds of the participants were female (65%) and one-third were male (35%). The students, who participated in this study, were from a mix of different ethnic groups: Persian (15.5%), Emirati (16.9%), Indian (5.6%) and other Arabs (60.6%). The majority of students (79.4%) entered dentistry immediately after their A level examinations, whereas 11 (15.5%) students reported having completed a BSc degree before joining dentistry.

#### Responses on selection of dentistry as a profession

Student responses on the motivating items for choosing dentistry as a profession are given in *Figure 1*.



**Figure 1.** Factors influencing United Arab Emirates final year dental students' decision to choose dentistry as a career ( $n = 71$ ). Note: The following factors were statistically significant: \*high income (males > females,  $P = 0.01$ ); \*\*influence of family (females > males,  $P = 0.02$ ); \*\*\*run a business (males < females,  $P = 0.03$ ).

The top influences of importance for all respondents were: 'desire to work in health care' (93%), a 'wish to provide a public service' (88.7%) and that the 'degree leads to a recognised job' (84.5%). In contrast, having 'tried alternative course' (43.7), 'computer careers advice' (46.5) and 'influence of friends' (46.5) were the items that least influenced students' choice of dentistry, although reported by almost half the students. The Cronbach's alpha score for the instrument was 0.82, indicating that it is internally consistent and reliable in measuring the influences motivating the dental students to choose dentistry as a profession.

There was a significant variation by gender in relation to some influences ranked as important. Males (84%) were significantly more likely than females (67%) to perceive 'high income' ( $P = 0.01$ ) as an important item in choosing dentistry as a profession. Similarly, the influence of 'being able to run business' was statistically significant ( $P = 0.03$ ), with 80% males reporting this compared with 52% females. The 'influence of family' had a significantly marked influence on the career choice of females when compared with male students (80% cf 60%;  $P = 0.02$ ).

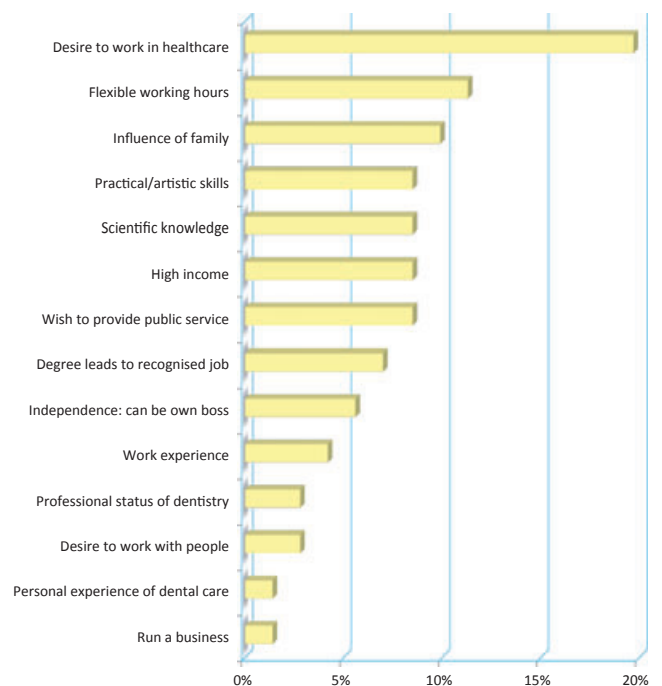
**Single major influence on selection of dentistry as a profession: univariate analysis**

Students were requested to select a single major influence on their decision to choose dentistry as a profession and their responses are illustrated in *Figure 2*.

Fourteen options were selected out of the 23 items listed in *Figure 1*. Overall, the single major influence was reported as a 'desire to work in health care' (20%), followed by 'flexible working hours' (11%), 'influence of family' (10%), 'practical skills (9%)', 'scientific knowledge' (9%) and 'high income (9%)'. The influence of 'desire to work in health care', which emerged as the prominent single major influence, was reported by 25% of male students and 18% female students. However, none of these items was statistically significant with respect to gender or age.

**Multivariate analysis on career choice of dentistry**

Factor analysis with varimax rotation was used to identify the latent factors of the career choice of final-year dental students in the UAE. The factors identified and the loadings of various items on each factor are presented in *Table 1*. In total, eight factors were extracted, which explained about 71% of the total variances in the data. The first factor, identified as 'professional job factors' included items such as 'studied sciences', 'tried alternative career/course', 'professional status of dentistry', 'regular working hours' and 'flexible working hours', which explained 11.7% of total variability. The second factor, which included items such as 'personal experience of dental care', 'work experience' and 'careers advice (computer)', explained 9.8% of the total variability in students' choice of dentistry as a career; this factor will be referred to as 'experience and advice'. The third factor



**Figure 2.** Single major influence affecting the United Arab Emirates final-year dental students' decision to choose dentistry as a career ( $n = 71$ ).

**Table 1** Factor scores of Influences on choice of dentistry by United Arab Emirates final-year dental students ( $n = 71$ )

Items	Factor scores							
	F1 (11.7%)	F2 (9.8%)	F3 (9.7%)	F4 (8.9%)	F5 (8.8%)	F6 (8.0%)	F7 (7.2%)	F8 (6.9%)
Personal Experience of dental care	0.31	<b>0.79</b>	0.08	-0.09	-0.05	-0.23	0.02	0.15
Work experience	0.11	<b>0.81</b>	-0.14	-0.03	0.10	0.11	0.13	0.01
Careers advice – computer	-0.06	<b>0.65</b>	0.11	0.30	0.12	0.04	0.07	-0.03
Careers advice – personal	0.10	-0.05	0.17	<b>0.78</b>	-0.07	0.05	0.23	0.00
Studied sciences	<b>0.62</b>	0.16	-0.19	0.20	0.15	0.16	-0.39	0.19
Tried alternative career/course	<b>0.78</b>	0.22	0.06	0.12	-0.14	0.03	0.04	0.18
Influence of family	-0.04	0.18	-0.09	0.09	0.06	0.07	<b>0.77</b>	0.17
Influence of friends	0.12	0.04	-0.05	0.03	-0.02	0.09	<b>0.85</b>	-0.20
Desire to work with people	0.25	0.48	0.07	0.03	0.11	<b>0.52</b>	0.04	0.38
Desire to work in health care	-0.04	-0.25	0.03	0.39	-0.12	<b>0.71</b>	0.06	0.26
Wish to provide public service	-0.02	0.09	0.09	-0.11	0.11	<b>0.87</b>	0.09	-0.14
Professional status of dentistry	<b>0.45</b>	0.02	0.02	0.36	0.03	0.36	0.06	0.31
High income	0.02	-0.03	<b>0.68</b>	0.25	-0.25	0.04	0.01	-0.32
Regular working hours	<b>0.77</b>	0.11	0.10	0.14	0.16	-0.08	0.18	-0.01
Flexible working hours	<b>0.67</b>	-0.10	0.36	-0.19	0.28	-0.01	-0.03	-0.12
Independence	0.15	0.01	<b>0.82</b>	0.16	0.14	-0.00	-0.14	-0.07
Being able to run a business	0.06	0.06	<b>0.82</b>	0.01	0.12	0.13	0.00	0.29
Job security	0.03	0.03	0.30	-0.07	<b>0.60</b>	-0.08	0.01	0.30
Academic knowledge	0.02	0.10	0.02	0.07	<b>0.83</b>	0.06	-0.01	0.05
Scientific knowledge	0.30	0.05	-0.21	0.28	<b>0.63</b>	0.12	0.09	-0.09
Practical skills	0.36	0.21	0.08	<b>0.58</b>	0.39	-0.07	-0.14	-0.10
Degree leading to recognised job	0.07	0.19	0.15	<b>0.64</b>	0.34	0.08	-0.11	0.26
Range of possible careers in dentistry	0.12	0.08	-0.03	0.10	0.10	0.04	-0.05	<b>0.84</b>

F1 = Professional job factors.

F2 = Experience and advice.

F3 = Business and financial with independence.

F4 = Careers advice and possibilities.

F5 = Job security and knowledge.

F6 = Health care, people, public service.

F7 = Family and friends.

F8 = Careers in dentistry.

Bold values indicate the highest factor score for that item.

included 'high income', 'independence' and 'being able to run a business', and was named as 'business and financial with independence'; this factor explained 9.7% of the total variance. The fourth factor was termed 'careers, advice and possibilities' and the fifth factor was termed 'knowledge and job security', which explained 8.9% and 8.8% of total variances, respectively. The sixth, seventh and eighth factors were termed 'health care, people and public service', 'family and friends' and 'career in dentistry', respectively. The variances explained by these last three factors were 8.0%, 7.2% and 6.9%, respectively.

The results of multivariate regression carried out on the factor scores with gender and age as predictor variables are presented in *Table 2*. From this analysis it was found that gender was a significant predictor of the 'business and financial with independence' factor ( $b = -0.76$ ,  $P = 0.003$ ). This suggests that male students are more concerned about business and financial aspects in choosing dentistry than their female counterparts; age did not play a significant role in this factor.

The eighth factor, named 'career and dentistry', was significantly predicted by age ( $b = -0.18$ ,  $P = 0.03$ ) indicating that students who scored high in

this factor are from younger age groups. No gender difference was found for this factor. None of the other six factors was significantly predicted by the gender or age of students in the multivariate analysis.

## DISCUSSION

### Motivation to choose dentistry as a profession

The dentist workforce in the UAE has developed and expanded over the last 15 years since the establishment of the first dental school in Ajman. This study is first of its kind looking at the motivation of the dental students about to join the dental workforce. It contributes to the wider literature on motivation to study dentistry and highlights the influences on students' choice of dentistry as a professional career<sup>8</sup>.

The findings from this study suggest that the students in Ajman University were influenced by altruistic motives, as demonstrated by their desire to 'work in health care' and 'provide a public service' emerging as the most common influences; these findings are in agreement with the results found in previous studies carried out around the world<sup>12-15</sup>. Vigild & Schwarz<sup>13</sup>,

**Table 2** Results of multivariate regression of factor scores on age and gender of United Arab Emirates final-year dental student respondents'

Factor	Predictor variable	Unstandardised effect ( <i>b</i> )	<i>t</i>	95% Confidence interval for <i>b</i>		<i>P</i>
F1	Age	0.11	1.40	-0.05	0.27	0.17
	Sex	-0.08	-0.32	-0.61	0.04	0.75
F2	Age	0.03	0.34	-0.13	0.19	0.73
	Sex	0.38	1.43	-0.15	0.91	0.16
F3	Age	-0.03	-0.41	-0.19	0.12	0.69
	Sex	-0.76	-3.04	-1.26	-0.26	0.003**
F4	Age	0.03	0.36	-0.13	0.19	0.72
	Sex	-0.28	-1.06	-0.81	0.25	0.29
F5	Age	-0.05	-0.58	-0.21	0.12	0.56
	Sex	0.16	0.61	-0.37	0.70	0.54
F6	Age	-0.09	-1.06	-0.25	0.08	0.30
	Sex	0.09	0.34	-0.44	0.62	0.74
F7	Age	-0.03	-0.32	-0.19	0.14	0.75
	Sex	0.29	1.11	-0.24	0.82	0.27
F8	Age	-0.18	-2.27	-0.34	-0.02	0.03*
	Sex	-0.23	0.89	-0.75	0.29	0.38

\*Denotes statistical significance at 0.05 level.

\*\*Denotes statistical significance at 0.01 level.

F1 = Professional job.

F2 = Experience and advice.

F3 = Business and financial with independence.

F4 = Careers advice and possibilities.

F5 = Job security and knowledge.

F6 = Health care, people, public service.

F7 = Family and friends.

F8 = Careers in dentistry.

in Denmark, reported that the dental students were attracted to dentistry primarily because of altruistic motives. Similarly, Hallissey *et al.*<sup>14</sup> in Ireland, reported that 'opportunity to help people' was the second most important influence on career choice of dentistry for the students. Karibe *et al.*<sup>15</sup> compared the views of fifth-year dental students regarding motivation to join dentistry as a profession in Japan and Sweden, and showed that the majority of Swedish students were motivated to join dentistry to help people or work in health care, which is again parallel with the findings of this study<sup>15</sup>. Other findings that support the existing literature include the motivation of 'high income' and being able to 'run a business', these being significantly higher for males than females<sup>8, 16-19</sup>.

Multivariate analysis provides insight to the 'cluster of influences' motivating the students. Factor analysis, with varimax rotation, facilitated the identification of the eight factors and explained 71% of total variances in the data. Gallagher *et al.*<sup>8</sup>, using the same instrument, demonstrated five factors explaining 61% variances in the data. Similar studies by Vigild & Schwarz<sup>13</sup> in Denmark and by Scarbecz and Ross<sup>19</sup> in the USA identified eight factors related to students' motivation; these authors showed 65% and 59% variability, respectively, for influences motivating dental students<sup>13,19</sup>. Interestingly, the percentage of variance explained by the factors identified (71%) in this study

is a little larger than the previous studies discussed above. Moreover, unlike the other studies, less apparent difference between the eight factors was found by factor analysis, indicating a possibility of a spread of factors affecting the dental students in choosing dentistry as a profession in the UAE.

The 'professional job factor' which included items such as 'studied sciences', 'tried alternative career/course', 'professional status of dentistry', 'regular working hours' and 'flexible working hours' emerged as the highest motivating factor explaining 11.7% variation in the influences. This finding parallels the findings of the study by Gallagher *et al.*<sup>8</sup> in the UK, which reported that the final-year dental students were motivated by the 'professional job' factors. In UK students, this factor accounted for 31% of the variability, whereas in the present study it was only 11.7%. Similar features of 'professional job factor' received high responses from the dental students in other studies carried out around the world<sup>13,14,19,20</sup>.

The second underlying factor that influenced students' decision to choose dentistry was 'experience and advice (9.8%)'. This included the item 'work experience', which provides insight into the features of professional job<sup>8</sup>. The study by Gallagher *et al.*<sup>8</sup> within the UK, suggests that the aspects of working as a dentist are bound to change significantly compared with the current professionals. The constant changes in the health-care system along with other factors such as influx of new expatriate dentists and changes in population dynamics will affect dentistry as a profession in the UAE. Hence, it is vital to consider influences such as work experience, which motivate students and provide them with a pragmatic view of the changing scenario of dentistry as a profession so as to have a positive dental workforce in the future<sup>8</sup>.

'Business and financial with independence' (9.7%) was the third highest factor motivating the dental students and included items such as 'high income', 'independence' and 'being able to run a business'. Traditionally, these influences have been significant for males, as highlighted in previous studies<sup>8,16-19</sup>, and findings of this study concur with that view. Univariate analysis suggested that the male students are motivated to join dentistry with the prospect of achieving 'high income' and the 'business element' of the profession. This fact is again supported by the results of multivariate regression carried out on factor scores which showed that gender was a significant predictor of the 'business and financial with independence' factor, indicating that male students are motivated more by the business and financial aspect of dentistry than their female counterparts. However, a relatively high percentage of females (67%) also reported 'high income' as an influential item even though it was statistically more significant for males.

The study revealed that the 'Influence of family' on career choice of the students was 'important' or 'very important' for 73% ( $n = 52$ ) of students overall, and females were significantly more likely than males to acknowledge this influence (80% *vs.* 60%;  $P = 0.02$ ). This contrasts with the UK study where the 'influence of family' was 'important' or 'very important' for only 57% of students overall (54% females *vs.* 60% males)<sup>8</sup>. Interestingly, although not statistically significant, Gallagher *et al.*<sup>8</sup> found that males reported a higher 'influence of family' on career choice of dentistry than females. This difference in the UK and UAE studies may be associated with the difference in the societal culture in both the countries, although many of the UK students come from Asian backgrounds where family are considered to play an important role in educational and professional decisions<sup>21</sup>. Sociological literature in the UAE suggests that 'family and society' play important roles in decision making<sup>22</sup>, and this is shown in the fact that family plays a strong influencing role in the career decision of the students<sup>23</sup>. However, in the multivariate analysis, when combined as a factor of 'family and friends' this accounted for only 7.2% of motivation in the current study and 6% in the UK study. Thus, the nature of the 'influence of family' as a motivating item or influence for students, both males and females, in both the UK and UAE studies should be explored further in any future research.

### Strengths and limitations of the study

The research instrument used for this study was pre-tested and formed through qualitative research data from studies carried out on the dental students in the UK<sup>8-10</sup>. All the items for motivation in the instrument were used by the students and additional items were not reported. This suggests that not only is the instrument robust for the UAE setting but the students in the UAE are also motivated by a similar range of influences as those found in the UK studies<sup>8,17,18</sup>. Moreover, the reliability coefficient (Cronbach's  $\alpha$ ) was well above the recommended 0.7 threshold. It will therefore be a useful tool for dental educators to use in examining the motivation of students across global institutions.

The relatively small study sample means that the results obtained from the analysis should be interpreted with care; however, the response rate was good for this group of students. Detailed analysis by ethnicity was not possible as the category 'Other Arabs' was the most common ethnic group (60.6%) and many students did not provide additional information. Future studies in this field should explore ethnicity and country of origin of students attending dental schools.

### Implications for dental education and further research

It is important for dental institutions and educators to understand the motivation of students to study dentistry to enable them to assist in preparing students for their professional career, and how these may differ across countries. It is therefore helpful during selection processes to recognise and explore the wide range of factors motivating students to study dentistry. Furthermore, as students expressed a strong desire to work in health care, this is a motivation that should be harnessed effectively through their undergraduate years and professional working lives. The younger students in particular were attracted by the range of professional careers in dentistry and as the national workforce grows and matures, this provides the opportunity for career development and specialisation to serve the needs of the population.

Further research should endeavour to test these findings in other schools, both old and new across the UAE and Middle East using this dental instrument. In addition, quantitative research may be augmented by qualitative research to provide greater insight of the motivating factors in relation to culture, gender and the influence of families.

### CONCLUSION

The findings suggest that this diverse group of final-year dental students at this university were motivated to enrol in dentistry by a wide range of factors of similar importance. There were distinct differences by gender: males were more likely to be influenced by 'business' and 'financial' factors than females and the 'influence of family' was particularly strong among female students. Educators and health policy makers involved in workforce education and planning should consider these findings. Similar research across institutions would provide helpful national and international evidence.

### Acknowledgements

The authors acknowledge the contribution of Swapnil Ghotane, Research Assistant at King's College London Dental Institute, who assisted with this paper and all the dental students who participated in the study.

### Conflicts of interests

Dr S Abufanas is the Dean of the dental school in which the study was conducted and Dr H Rashid has contributed to student teaching in the school.

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