



ORIGINAL ARTICLE

Dental specialty, career preferences and their influencing factors among final year dental students in Saudi Arabia



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Abstract *Objective:* The purpose of this study was to investigate evolving trends in dental post graduate specialty preferences and career aspirations among final year dental students in Saudi Arabia.

Materials and methods: A cross sectional survey using a self-administered questionnaire was conducted among final year dental students from seventeen universities in Saudi Arabia. The questionnaire enquired about socio-demographic details and the ranking of three of their best preferences among the list of specialties/general dentistry and career options. They were also enquired about their opinion regarding the total time required to become a dentist and their intention to go for further studies abroad. The questionnaire assessed factors influencing their choices using a 5 point Likert scale ranging from extremely important to not important. Binary logistic regression to examine the combined effect of several independent variables on the likelihood of choosing a dental specialization/general dentistry and career option were analyzed.

Results: The overall response rate was 64.6%. Restorative and Aesthetic Dentistry was the most preferred specialty ($n = 98$; 17.7%) followed by Endodontics ($n = 78$; 14.1%); Prosthodontics ($n = 65$; 11.7%) and Orthodontics ($n = 63$; 11.4%). The two most preferred careers were 'Civilian dentist in public sector' followed by 'Academic services dentist'. Overall, students reported that the influence of family members in the dental profession, preference for private practice and specific interest in patient population as the most important factors in choosing a specialty/general den-

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tistry. Intellectual content of the specialty was ranked the least important. On the other hand, the most important factors for choosing a career were variety of non-clinical duties, access to child care facilities and research opportunities.

Conclusion: The results of this study show the top preferred specialties and career choices which can be a baseline for establishing national policies and for the improvement of graduate programs. There seems to be a need to promote mentoring activities and provide guidance and encouragement to pre-doctoral dental students in selecting the most appropriate specialty within their capability domain.

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1. Introduction

The factors influencing the choice of a dental profession are very important in terms of identifying the expectations of the profession (Folayan et al., 2014). Several studies have reported that the majority of the undergraduate dental students prefer to continue their education toward a specialty degree (Sofola et al., 2008; Stewart et al., 2005; Weaver et al., 2002). This has important implications for the dental workforce planning agenda in any country. With an increase in demand for dental treatment and with an increase in supply of dental schools, a striking balance between dental needs and supply is inevitable.

In 1987, Saudi Arabia had 3 dental schools, and the total number of dentists was 786; the dentist-to-population ratio was 1:8906 (Shalhoub and Badr, 1987). According to 2014 Ministry of Health statistics, there were 12,785 dentists in Saudi Arabia, dentist rates per 10,000 population was 4.11 and the dentist-to-population ratio was 1:2666 (MOH, 2014). In Saudi Arabia, each university offers a six-year dentistry program that includes a one-year internship. The new applicants to the respective universities participate in a one-year preparatory course after which, based on their grade point average (GPA), they are admitted to a medical, dental or other allied college (Halawany, 2014).

To the best of our knowledge, there are only limited number of studies conducted on dental specialty and career preferences in Saudi Arabia. One institutional study conducted in Saudi Arabia reported that among 532 male (1982–2004) and 545 female graduates (1984–2006), 77% and 54% respectively successfully completed their postgraduate dental education (Al-Dlaigan et al., 2011, 2012). Furthermore, in another study which explored preferred specialties among Saudi dental students, the most popular specialty among the male students was oral maxillofacial surgery (20.1%) and among female students was operative dentistry (23.4%) (Halawany, 2014).

Several factors have been described in the dental literature concerning the choice of a career in dentistry. Factors such as social standing and high professional status (Crossley and Mubarik, 2002); higher social status and income (Crossley and Mubarik, 2002; Hallissey et al., 2000; Vigild and Schwarz, 2001); ability to be self-employed (Hallissey et al., 2000; Jover et al., 2006); artistic nature of the career (Hallissey et al., 2000; Jover et al., 2006; Stewart et al., 2005; Vigild and Schwarz, 2001); helping people (Dal Poz et al., 2006; Hallissey et al., 2000; Stewart et al., 2004; Vigild and Schwarz, 2001) and general interest in dentistry (Orenuga and da Costa, 2006; Stewart et al., 2004) have been reported as the most important factors influencing their choice of

career. However, the demographic characteristics of a population is also an important determinant which influences the motivations and career expectations among dental students (Bernabe et al., 2006; Khami et al., 2008; Orenuga and da Costa, 2006; Scarbecz and Ross, 2002; Winter and Butters, 1998).

As the previous study addressed career motivations, perceptions of the future of dentistry and preferred dental specialties among Saudi dental students (Halawany, 2014), the authors of the current study attempted to investigate evolving trends in dental specialty and career choices. Consequently, the aim of the study was to evaluate the specialty and career preferences and their influencing factors among final year dental students in Saudi Arabia.

2. Materials and methods

This study was reviewed and approved by the ethics committee of the College of Dentistry Research Center, King Saud University, Riyadh, Saudi Arabia (CDRC registration number IR0125) on October 27, 2014 and was undertaken with the understanding and informed consent of each participant according to the ethical principles of the World Medical Association Declaration.

A cross sectional study was chosen as it would represent and suffice the objectives of obtaining the information required for this study. The target study population was final year dental students enrolled in all dental schools across Saudi Arabia. The addresses of all dental schools in Saudi Arabia was retrieved and checked whether they have final year students in order to approach them to conduct this survey. On doing so, information obtained suggested that 7 dental colleges had students that did not reach the final year at the time of conducting this survey and hence were excluded. Based on gathered information, the overall sample size of $n = 1005$ students reflected the total final year students from the participating dental schools. After obtaining permissions from the Institute Vice Dean of Academic Affairs of each of the 11 public and 6 private dental schools, the questionnaires were distributed. The purpose of the survey was given to the participants written on the introductory page of the questionnaire.

A responsible student from each of the 17 dental schools was contacted and assigned as the contact person for correspondence during the survey. An 11-item paper and pencil type of questionnaire was developed after a comprehensive review of literature. A pilot study of the questionnaire in English language was conducted with a group of 25 randomly selected

male students from College of Dentistry, King Saud University to identify any obstacles, and necessary modifications were made accordingly. The random selection was performed by a lot system in which every student had an equally likely chance of participation. These students were excluded from the final analysis. The questionnaire inquired about the socio-demographic details such as the age, gender, nationality, marital status, expected GPA, desire to study abroad and opinion regarding total time required to become a dentist.

In order to assess the respondents' post-graduate specialty preferences, the students were asked to indicate their best preference among the list of 14 specialties available in the field of dentistry along with general dentistry as an option. Using previously published literature as a guide (Nwhator et al., 2013; Saeed et al., 2008), the questionnaire included several factors for choosing a particular specialty/general dentistry following their graduation and the students were asked to rate the factors with the help of a 5 point Likert scale having the following labels: 1 = extremely important, 2 = very important, 3 = important, 4 = minimally important, and 5 = not important. The students were enquired regarding which field of employment they wish to work following graduation from seven career options (Refer to Table 2). In addition, the students were asked to rate multiple factors that could influence their career choices in line with previously published studies (Drugan et al., 2004; Gallagher et al., 2007) with the same abovementioned 5 point Likert scale.

Each prospective student participant was approached individually by the respective student volunteers in each participating dental schools, who sought the participants' consent to participate voluntarily in the questionnaire survey. Over a period of 4 months starting from November 2014, a total of 750 questionnaires were distributed. Those willing to participate were handed the questionnaire, which ensured confidentiality. The questionnaires were returned immediately after completion, which was compiled together from all the respondents of each institution and then couriered to the College of Dentistry, King Saud University, Riyadh for the final analysis.

The data collected were verified for completeness and were manually entered into a Statistical Package of Social Sciences database (SPSS, version 20, IL, USA). Statistical analysis was done using cross-tabulations with chi-square tests. A p value of less than 0.05 was set as the level of significance. Cronbach's alpha was used to evaluate the internal consistency of the two categories of factors affecting specialty/general dentistry preferences and career options respectively. Descriptive statistics were employed to determine the number and percentages of the responses (reclassified as important/neutral/not important) to the factors affecting future options such as specialties/general dentistry preferences and career choices. For the logistic regression models the responses to the factors were recoded as 0 = not important (by including minimally important and not important) and 1 = important (by including extremely important, very important and important). The most preferred

Table 1 Background characteristics of the dental students.

Variables	Male <i>n</i> = 332 <i>n</i> (%)	Female <i>n</i> = 314 <i>n</i> (%)	Total <i>n</i> = 649 <i>n</i> (%)	Statistics
Institution ^a				$p = 0.000^*$
Governmental	245 (74.0)	144 (45.9)	389 (60.43)	$\chi^2 = 53.38$
Private	86 (26.0)	170 (54.1)	256 (39.7)	
Nationality ^b				$p = 0.000^*$
Saudi	279 (87.7)	237 (76.9)	516 (82.4)	$\chi^2 = 12.57$
Non-Saudi	39 (12.3)	71 (23.1)	110 (17.6)	
Marital status ^c				$p = 0.032^*$
Married	59 (17.8)	77 (24.8)	136 (21.2)	$\chi^2 = 4.62$
Other (single or divorced)	272 (82.2)	234 (75.2)	506 (78.8)	
Expected GPA score ^d				$p = 0.000^*$
Excellent	36 (11.0)	96 (31.2)	132 (20.8)	$\chi^2 = 62.28$
Very Good	169 (51.7)	167 (54.2)	336 (52.9)	
Good	117 (35.8)	43 (14.0)	160 (25.2)	
Acceptable	5 (1.5)	2 (0.6)	7 (1.1)	
Intentions to study abroad ^e				$p = 0.154$ (NS)
Yes	197 (59.7)	206 (65.6)	403 (62.6)	$\chi^2 = 3.74$
No	26 (7.9)	15 (4.8)	41 (6.4)	
Undecided	107 (32.4)	93 (29.6)	200 (31.1)	
Opinion regarding the course duration of dentistry ^f				$p = 0.170$ (NS)
Too short	3 (0.9)	2 (0.6)	5 (0.8)	$\chi^2 = 3.54$
Reasonable	129 (39.1)	145 (46.2)	274 (42.5)	
Too long	198 (60.0)	167 (53.2)	365 (56.7)	

Missing values: a = 4; b = 23; c = 7; d = 14; e = 5; f = 5.

NS, not significant ($p > 0.05$).

χ^2 indicates Pearson Chi-Square value.

* Indicates significant difference between the two groups ($p < 0.05$).

Table 2 Dental students' specialty/general dentistry preferences and immediate career plans upon graduation by number and percentage of the total 649 respondents in each category ranked in order by first preference.

Future options	First preference <i>n</i> (%)	Second preference <i>n</i> (%)	Third preference <i>n</i> (%)
Restorative and esthetic dentistry	98 (17.7)	95 (17.3)	95 (17.5)
Endodontics	78 (14.1)	95 (17.3)	57 (10.5)
Prosthodontics	65 (11.7)	47 (8.6)	59 (10.9)
Orthodontics	63 (11.4)	52 (9.5)	43 (7.9)
Oral and maxillofacial surgery	59 (10.6)	41 (7.5)	48 (8.9)
Pediatric dentistry	58 (10.5)	64 (11.7)	55 (10.1)
Advanced general dentistry	40 (7.2)	44 (8.0)	47 (8.7)
General dentistry	23 (4.2)	20 (3.6)	26 (4.8)
Periodontics	22 (4.0)	36 (6.6)	35 (6.5)
Dental public health	20 (3.6)	20 (3.6)	18 (3.3)
Forensic dentistry	12 (2.2)	13 (2.4)	26 (4.8)
Oral medicine and diagnosis	5 (0.9)	7 (1.3)	5 (0.9)
Oral radiology	5 (0.9)	6 (1.1)	11 (2.0)
Oral biology	4 (0.7)	1 (0.2)	6 (1.1)
Oral pathology	2 (0.4)	7 (1.3)	11 (2.0)
Career options			
Civilian dentist in public sector	285 (51.1)	143 (25.8)	54 (10.1)
Academic services dentist	132 (23.7)	104 (18.8)	126 (23.5)
Civilian dentist in private sector	65 (11.6)	141 (25.5)	124 (23.1)
Dentist in Military sector	42 (7.5)	87 (15.7)	73 (13.6)
Management of dental business	12 (2.2)	28 (5.1)	74 (13.8)
Researcher	11 (2.0)	26 (4.7)	34 (6.3)
Business outside dental field	10 (1.8)	22 (4.0)	45 (8.4)
Other careers	1 (0.2)	3 (0.5)	6 (1.1)

specialty and career choices were categorized as 0 = not selected and 1 = selected. The mean scores were calculated and given rankings from the 3 point Likert scale. Binary logistic regression designated as enter models were used to determine which factors were associated with each specialty/general dentistry and career options. Due to space constraints and the number of different models performed in the analysis, only statistically significant results are reported.

3. Results

3.1. Demographic variables

The overall response rate was 64.6% (649 of 1005 potential participants). The respondents' demographic and background characteristics based on gender are presented in Table 1. The mean age of the respondents was 24.23 ± 2.11 years with a range of 20–39 years. Approximately 51.4% ($n = 332$) of the respondents were male, and 48.6% ($n = 314$) were female. The majority of the final year dental students who responded were Saudi nationals (82.4%, $n = 516$). Statistically significant gender differences ($p < 0.05$) were found for type of institutions (males in governmental > private), nationality (Saudi > Non-Saudi), marital status (married < others) and expected GPA scores (very good > good > excellent > acceptable). Regarding their opinion on studying abroad, female dental students (65.6%, $n = 206$) showed more tendencies to pursue continued education abroad. Majority of the students reported the opinion that the duration of their dentistry program was too long (56.7%, $n = 365$).

3.2. Specialty/general dentistry preferences

The distribution of the respondents according to the most preferred future options in terms of pursuing a specialty or continue as a general dentist is given in Table 2. Restorative and Aesthetic Dentistry was the

most preferred specialty ($n = 98$; 17.7%) followed by Endodontics ($n = 78$; 14.1%); Prosthodontics ($n = 65$; 11.7%) and Orthodontics ($n = 63$; 11.4%). The distribution of specialties/general dentistry preferences based on gender is given in Fig. 1. The most preferred specialty among female respondents was Restorative and Aesthetic Dentistry ($n = 43$; 15.8%) followed by Oral and Maxillofacial Surgery ($n = 35$; 12.8%) and Endodontics ($n = 34$; 12.5%). The most preferred specialty among male respondents was Restorative and Aesthetic Dentistry ($n = 55$; 19.7%) followed by Endodontics ($n = 44$; 15.8%) and Prosthodontics ($n = 35$; 12.5%).

The Cronbach's alpha for the 14 items affecting the specialty/general dentistry preferences was 0.8, thereby demonstrating acceptable internal consistency. The mean scores of the responses to the factors affecting specialty/general dentistry choices are shown in Table 3. 'Influence of family members in the dental profession', 'Preference for private practice', and 'Specific interest in patient population seen' were the three most important factors in determining the choice of a particular specialty/general dentistry. The perceived importance of the factors influencing the choice of specialty/general dentistry by binary logistic regression is shown in Table 4. In the model, all factors except 'Perceptions of residents in the program' and 'Interest in community services' were important for the students in choosing Restorative and Aesthetic Dentistry as their preferred specialty. 'Specific interest in patient population' was found to be the most important factor for choosing Restorative and Aesthetic Dentistry.

3.3. Career preferences

The distribution of the respondents according to the most preferred career is given in Table 2. The two most preferred careers were 'Civilian dentist in public sector' followed by 'Academic services dentist'. The Cronbach's alpha for the 14 items affecting the career choices was 0.9, thereby demonstrating good internal consistency or reliability. The mean scores of the responses to the factors affecting career choices are shown in Table 5. 'Variety of non-clinical duties', 'Access to child

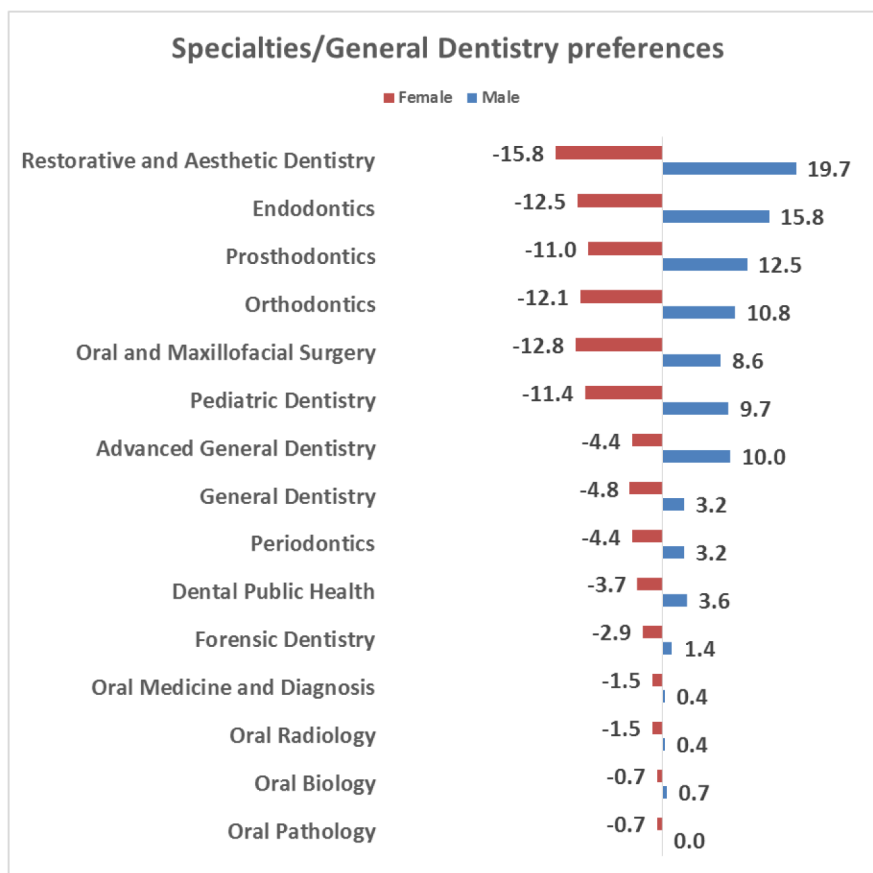


Fig. 1 Distribution of specialties/general dentistry preferences based on gender.

Table 3 Mean scores and the responses to the factors affecting specialty/general dentistry choices by number and percentage of the respondents.

Rank*	Factors	Mean Score \pm SD	Important <i>n</i> (%)	Neutral <i>n</i> (%)	Not important <i>n</i> (%)
1	Influence of family members in dental profession	2.05 \pm 0.87	222 (34.9)	158 (24.8)	257 (40.3)
2	Preference for private practice	2.03 \pm 0.84	215 (33.8)	187 (29.4)	235 (36.9)
3	Specific interest in patient population seen	1.95 \pm 0.81	221 (34.8)	223 (35.1)	191 (30.1)
4	Prestige within dental profession	1.94 \pm 0.77	207 (33.2)	249 (39.9)	168 (26.9)
5	Influence of faculty or colleagues in the dental profession	1.93 \pm 0.83	244 (37.9)	197 (30.6)	202 (31.4)
6	Perception of residents in the program	1.93 \pm 0.78	215 (33.7)	251 (39.3)	172 (27.0)
7	Lack of overcrowding in the field	1.91 \pm 0.81	237 (37.6)	215 (34.1)	179 (28.4)
8	Predictable working hours	1.90 \pm 0.77	221 (35.4)	245 (39.3)	158 (25.3)
9	Length of residency	1.88 \pm 0.79	241 (38.0)	226 (35.6)	167 (26.3)
10	Interest in community service	1.81 \pm 0.79	262 (41.8)	219 (34.9)	146 (23.3)
11	Good income within specialty	1.80 \pm 0.81	285 (45.0)	191 (30.1)	158 (24.9)
12	Challenging diagnostic problems	1.80 \pm 0.76	252 (40.3)	244 (39.0)	129 (20.6)
13	Possession of talent/skills unique to the specialty	1.78 \pm 0.77	271 (42.9)	227 (35.9)	134 (21.2)
14	Intellectual content of specialty	1.73 \pm 0.75	290 (45.2)	236 (36.8)	115 (17.9)

Mean score calculated from the 3 point Likert scale ranging from 1 = not important to 3 = important; SD: standard deviation.

* Ranked in order of importance.

care facilities' and 'Research opportunities' were the three most important factors influencing the choice of a particular career. The perceived importance of factors influencing the choice of career by binary logistic regression is given in Table 6. All factors except 'Access to continuing professional development', 'Autonomy', and 'Access to library and computer facilities' were important factors for the students in choosing 'Civilian dentist in public sector' as their preferred career.

4. Discussion

This study was able to provide a better understanding of the factors influencing students' selection of the advanced education programs and career choices, future job characteristics and the overall perceived necessity of post graduate education.

Table 4 Final year dental students' perceived importance of factors influencing choice of specialty/general dentistry by binary logistic regression.

Dependent variables ^f	Independent variables ^s	OR	P value	95% CI
1. Influence of family members in the dental profession	Restorative & Aesthetic Dentistry	2.07	0.025	1.10, 3.89
	Endodontics	2.18	0.022	1.12, 4.22
	Gender (1)	1.48	0.024	1.05, 2.08
2. Specific interest in patient population	Restorative & Aesthetic Dentistry	2.37	0.009	1.24, 4.56
	Endodontics	2.27	0.019	1.15, 4.50
	Pedodontics	2.17	0.041	1.03, 4.57
	Oral and Maxillofacial Surgery	2.21	0.034	1.06, 4.62
	Prosthodontics	2.17	0.034	1.06, 4.45
	General dentistry	3.80	0.002	1.75, 3.13
	Periodontics	2.96	0.037	1.07, 8.19
3. Influence of faculty or colleagues in the dental profession	Restorative & Aesthetic Dentistry	1.86	0.040	1.02, 3.36
4. Perceptions of residents in the program	Oral and Maxillofacial Surgery	2.03	0.048	1.01, 4.07
5. Length of residency	Restorative & Aesthetic Dentistry	1.90	0.040	1.03, 3.49
	Orthodontics	2.01	0.044	1.02, 3.97
6. Interest in community services	Endodontics	2.09	0.025	1.10, 3.98
	Prosthodontics	2.54	0.007	1.29, 4.10
	General Dentistry	3.03	0.028	1.13, 8.11
7. Challenging diagnostic problems	Restorative & Aesthetic Dentistry	2.04	0.021	1.11, 3.75
	Prosthodontics	2.12	0.027	1.09, 3.91
8. Possession of talents/skills unique to the specialty	Restorative and Aesthetic Dentistry	2.06	0.018	1.13, 3.75
	Pedodontics	2.04	0.043	1.02, 4.05
	Restorative & Aesthetic Dentistry	1.96	0.026	1.08, 2.54
9. Intellectual content of the specialty	Restorative & Aesthetic Dentistry	1.96	0.026	1.08, 2.54
	Prosthodontics	3.75	0.000	1.89, 7.45

Factors not significant in the model: marital status, Predictable working hours, Specific interest in patient population seen, Good income within specialty, Preference for private practice, Prestige within dental profession and Lack of overcrowding in the field.

^f Factor coding 0 = Not important, 1 = Important.

^s Specialty coding 0 = Not preferred, 1 = Preferred; Gender 1 = Male, 2 = Female; Significance level at $p < 0.05$.

Table 5 Mean scores and responses to the factors affecting career choices by number and percentage of the respondents.

Rank*	Factors	Mean Score \pm SD	Important <i>n</i> (%)	Neutral <i>n</i> (%)	Not important <i>n</i> (%)
1	Variety of non-clinical duties	1.95 \pm 0.78	177 (28.2)	244 (38.9)	207 (33.0)
2	Access to childcare facilities	1.93 \pm 0.84	201 (31.9)	184 (29.2)	246 (39.0)
3	Research opportunities	1.93 \pm 0.82	188 (29.7)	210 (33.2)	235 (37.1)
4	Access to library and computer facilities	1.83 \pm 0.80	156 (24.8)	212 (33.7)	261 (41.5)
5	Working with colleagues of other specialties	1.83 \pm 0.77	145 (22.8)	239 (37.5)	253 (39.7)
6	An enhanced consultant reward scheme	1.82 \pm 0.80	154 (24.6)	209 (33.3)	264 (42.1)
7	Mixing with colleagues/sociability	1.82 \pm 0.77	140 (22.1)	241 (38.1)	252 (39.8)
8	Employment benefits	1.79 \pm 0.80	145 (23.3)	203 (32.7)	273 (44.0)
9	Flexibility of hours/days worked	1.77 \pm 0.81	149 (23.6)	190 (30.1)	292 (46.3)
10	Range of clinical work	1.76 \pm 0.71	98 (16.3)	263 (43.7)	241 (40.0)
11	Guaranteed salary	1.74 \pm 0.80	139 (22.2)	184 (29.4)	303 (48.4)
12	Access to continuing professional development	1.74 \pm 0.77	124 (19.6)	219 (34.7)	289 (45.7)
13	Autonomy	1.73 \pm 0.76	121 (19.4)	216 (34.6)	287 (46.0)
14	Level of remuneration	1.72 \pm 0.80	136 (21.6)	184 (29.2)	311 (49.3)

Mean score calculated from the 3 point Likert scale ranging from 1 = not important to = important; SD: standard deviation.

* Ranked in order of importance.

We were concerned with the future direction of the final year dental students in Saudi Arabia. It is one of the toughest decisions to make for the graduating dental students, as they must decide whether to enter the workforce immediately following their graduation or to pursue another career option such as advanced education or specialization.

4.1. Demographics

The final year students was the target population in this study as we presumed that they have had adequate exposure to the practice of dentistry to be able to have an cognizant opinion

Table 6 Final year dental students' perceived importance of factors influencing choice of career by binary logistic regression.

Dependent variables ^f	Independent variables ^c	OR	n	95% CI
1. Access to childcare facilities	Public sector	2.02	0.012	1.17, 3.50
	Private sector	2.28	0.020	1.14, 4.57
2. Research opportunities	Public sector	2.38	0.003	1.34, 4.25
	Private sector	2.87	0.004	1.40, 5.90
	Academic services	1.94	0.042	1.02, 3.67
3. Working with colleagues of other specialties	Public sector	1.69	0.051	0.10, 2.84
	Private sector	2.49	0.008	1.27, 4.89
	Military sector	2.28	0.036	1.06, 4.91
4. Access to library and computer facilities	Private sector	2.03	0.038	1.04, 3.98
5. Sociability/Mixing with colleagues	Public sector	1.77	0.036	1.04, 3.03
	Private sector	2.50	0.009	1.26, 4.97
6. An enhanced consultant reward scheme	Public sector	1.78	0.030	1.06, 2.99
7. Employment benefits	Public sector	2.00	0.011	1.18, 3.41
	Private sector	2.08	0.036	1.05, 4.13
8. Flexibility of hours/days worked	Public sector	2.24	0.003	1.32, 3.77
	Private sector	2.86	0.003	1.45, 5.66
9. Access to continuing professional development	Private sector	2.66	0.005	1.35, 5.22
10. Autonomy	Private sector	2.20	0.024	1.11, 4.34
11. Guaranteed salary	Public sector	1.87	0.018	1.11, 3.16
12. Level of remuneration	Public sector	1.87	0.017	1.12, 3.11
	Private sector	2.20	0.021	1.13, 4.31

Factors not significant in the model: gender, marital status, Variety of non-clinical duties.

^f Factor coding 0 = Not important, 1 = Important.

^c Career coding 0 = Not preferred, 1 = Preferred; Significance level at $p < 0.05$.

about choices they make with respect to current and future dental practice. About 62% of our respondents reported that they had intentions to study abroad which is higher than that reported in an Iranian study (Baharvand et al., 2011). In this Iranian study, only 5% definitely and 21% probably wanted to enter specialty programs abroad. The majority of the participants (56.8%) reported that the course duration of dentistry is too long and 42.5% reported that it is reasonable. This is not in agreement with the results of a comparative study among Japanese and Swedish dental students which reported that the majority of dental students in both countries perceived their course duration to be reasonable (77% in Sweden and 62% in Japan) (Karibe et al., 2009).

4.2. Specialty/general dentistry preferences

The results of this survey showed that the most preferred specialty was Restorative and Aesthetic Dentistry. Specialization in dentistry is rewarding and it has been reported that dental specialists earn higher income compared to general dentists (Scarbecz and Ross, 2007). However, general dentists meet the treatment needs of a large percentage of the population in Saudi Arabia. In our study, though results regarding specialization seems promising, there are concerns regarding the low percentage of final year students interested in general dentistry (4.2%) and public health dentistry (3.6%). Therefore, a greater need exist in streamlining the public and private dental job market environment in order to accommodate a higher number of general dentists and dental public health specialists.

The specialty preferences of Saudi dental students seem to have changed from 2011 to 2015. Single institution studies conducted in 2011 reported that Prosthodontics followed by

Orthodontics were the most preferred specialties among male dental students (Al-Dlaigan et al., 2011) whereas; Orthodontics followed by Endodontics were the most preferred among female dental students (Al-Dlaigan et al., 2012). Another study conducted at the same institution in 2014 reported that Oral & Maxillofacial surgery followed by Orthodontics were the most preferred among male- and Operative Dentistry followed by Pediatric Dentistry were the most preferred among female dental students (Halawany, 2014). The results of the present study showed that Restorative & Aesthetic Dentistry was the most preferred among the surveyed male as well as female dental students followed by Endodontics among male and Oral & Maxillofacial Surgery among female students.

A systematic review of population-based studies concluded that dental caries in Saudi children needed immediate attention of the government and the dental profession officials (Al-Agili, 2013). In view of this and the results of our study which showed a comparatively low percentage of the surveyed students interested in pediatric dentistry, the higher authorities in charge of dental post-graduate studies should take such a huge unmet demand in the region into consideration and encourage undergraduates to pursue specialization in pediatric dentistry.

The factors that were considered to be important in the specialty/general dentistry preferences of our respondents appears to be related to the influence of family, colleagues or faculty members in the dental profession (Rank 1 and 5; Table 3). However, a single institution study conducted in the US (Saeed et al., 2008) reported that their respondents valued possession of specific skills/talents unique to the specialty, intellectual content of specialty and challenging diagnostic problems as the three most important influencing factors on choosing

a specialty. Constructive family inspiration is important to the progression of students' academic careers and it has been reported that strong encouragement from spouses, relatives, mentors, and advisors can greatly increase pursuit of a specialty program (Scarbecz and Ross, 2007).

4.3. Career preferences

For the future career options, a majority of the dental students preferred to work as a civilian dentist in the public sector, more so by female students. This gender-related finding concurs with previous studies (Baharvand et al., 2011; Widström et al., 1989), in which females were found to be more interested than males in working in public dental careers. The logistic regression model demonstrated several factors to be significantly perceived as important for choosing the public services except for access to continuing professional development and other facilities like library and computer and autonomy. To be able to work in the public services as in university hospitals and other specialized dental hospitals might have given the impression that the job is secured for the lifetime, in addition to, a fixed retirement income and this ideology is what many nations follow for decades (Yan et al., 2014). In our study, the preference to work in the public than the private sector is in contrast to the study conducted among Iranian dental students (Baharvand et al., 2011). Academic services were selected as the second most preferred career option. In Saudi Arabia, unless the students focus on completing their advanced education programs, they may not be able to thrive in an academic career, as most institutions prefer educators that are highly qualified specialists in the field.

The factor ranked the most important for choosing a career path was 'variety of non-clinical duties'. Access to childcare facilities was ranked second and was the only factor significantly different among the genders. Due to the most demanding role that women by tradition undertake with child-rearing, their immediate career plans may reflect these duties (Nashleanas et al., 2014). Surprisingly, males in our study favored this aspect more than the female counterparts and that may be one reason why the students preferred the government and educational area of employment more than the private practice (Atchison et al., 2002; Dhima et al., 2012). Though not statistically significant, more number of male than female dental students found 'variety of non-clinical duties' and 'research opportunities' influential in their choices. This is probably due to the fact that, in Arab societies, meeting the financial needs of the family continues to be recognized as one of the major responsibilities of the males and hence they are more than willing to take up non-clinical duties to enhance their careers. The increased demand for research opportunities also has a significant role to play in career promotions and for the recognition they will receive for their contribution to dentistry.

4.4. Limitations of the study

Certain limitations of this study should be noted when interpreting the results. As with any questionnaire-based survey, some elements of under-reporting bias might occur in the study. The cross-sectional design, non-respondent bias and the desire of the respondents to choose socially acceptable

responses, as observed in questionnaire surveys (Palmqvist et al., 1991) may also be considered limitations. The original labeling of the responses in the questionnaire was a 5 point Likert scale and following completion of the study, we reclassified the scale for easier analysis and for a better understanding of the situation. This alteration could have been implemented following the pilot study and hence may be considered as a drawback of the study.

In accordance to the study among medical students (Cleland et al., 2014), in our survey, we too asked for top three choices of specialty and career to achieve a greater coverage of students' preferences rather than just asking "first" or the "most preferred" choice. The drawback of this approach is that it does result in triple counting of each specialty or career choice and we do not know the "weighting" of each choice, nor can we deduce reasons for very unusual choices – this requires a qualitative, exploratory study. However, it was justified by the authors that no approach to determining preferences is perfect (Cleland et al., 2014). We should acknowledge the fact that asking students about future plans may not accurately reflect what these students actually do after their graduation. A follow-up study of these new aspirants within few years of graduation could lead to a better understanding of how different influences effect their immediate education and career plans.

5. Conclusion

Within the limitations of the study the following conclusions were drawn:

1. The most preferred specialty was Restorative & Aesthetic Dentistry and the most preferred career was to work in public sector.
2. The most important factor in choosing particular specialty/general dentistry was 'the influence of family members in the dental profession' and that of choosing a career was 'variety of non-clinical duties'.

All the final year dental students had a positive perception and aspirations regarding their future and career prospects. It would seem that these positive perceptions would bring about the continuous development of dentistry in the coming decades. This study can be a baseline for establishing national policies and for the improvement of graduate programs. There seems to be a need to promote mentoring activities and provide guidance and encouragement to pre-doctoral dental students in selecting the most appropriate specialty and career within their capability domain. A follow up study is warranted to determine whether this trend of choosing a particular specialty or career as the most preferred is being followed in the reality. Also, collecting such information would give us more insight into how we can improve students' experience and exposure to various dental specialties during their dental school training so we can identify further ways to increase their interest in pursuing specialty training especially where there is a shortage in specialty-trained dentists and faculty members.

Conflict of interest

None declared.

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