

Emerging Trends in Dental Specialty and Employment Choice Among Male Dentists Graduating from King Saud University between 2005 and 2015

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ABSTRACT

Aim of the work: specialization in any field is known to be associated with higher productivity. Postgraduate dental education has a key role in providing the proper training for practitioners. This study aimed to assess the dental specialization trends among dentists who graduated from 2005 to 2015.

Method: this observational descriptive study was conducted with the dental graduates of King Saud University. The participants were identified randomly and contacted via telephonic communication based on the list provided by the university academic affairs. The structured interview included 12 multiple choice questions to identify the specialty preferences of the graduate dentists. Chi-square and Fisher's exact test were used where applicable. The p-value < 0.05 was considered significant for all applied statistical tests.

Results: this study included 233 dental graduates the majority of which were working in the government sector (70%). Almost half of the subjects (49%) were general practitioners and had no specialization. Most of them had an interest in a postgraduate degree with prosthodontics being the most aspired specialty (30%). The overall trend of specialization between 2005-2015 showed a marked decline in both local and international post-graduation (p-value 0.013). **Conclusion:** specialization in the Saudi dentistry field is experiencing a decline in the number of graduates both locally and internationally. From here arises the importance of career and specialization orientation especially among the final year students to guide them in choosing their future specialties, while considering the needs and requirements of the community. This should be coupled with a proper recognition of the dental needs of the Saudi population.

Keywords: dental universities; trends; dental specialties; dental graduates.

INTRODUCTION

Specialization in any field is known to be associated with higher productivity. The same applies to the healthcare sector in general and specifically to dentistry where general practice is being rivaled with the increasing demand for specialization. Postgraduate dental education has a key role in providing the proper training for practitioners who meet the specific dental health needs of society in areas where general dentistry proved to be insufficient⁽¹⁾. This in addition to the academic roles that postgraduate dentists can lead in areas of teaching and research⁽¹⁾. The development of postgraduate dental education programs should occur only after proper planning and considering several factors such as societal need, professional development and socio-economic aspects⁽²⁾. Currently, the number of dental specialties according to the American dental association (ADA) is nine specialties⁽³⁾, whereas the Saudi Council for Health Specialties (SCFHS) recognized thirteen specialties. It should be noted that the ADA believed that general practice can better serve the public dental

health needs and specialties should be only in areas which require additional skills and expertise⁽⁴⁾. In addition to postgraduate qualifications leading to specialist status, there were a variety of further qualifications including Board Certification, Diploma, Master's and Doctorate degrees, membership and fellowship. According to a recent research brief, the number of dentists per capita in the United States is expected to steadily increase through 2035⁽⁵⁾. This can imply an increase in both general practitioner and specialist dentists. Several studies explored the specialization aspiration of both graduate and student dentists⁽⁶⁻¹⁴⁾. A study showed that nearly 80 % of the sample of UK dental practitioners were thinking of continuing education in the form of a membership examination and 25 % were considering pursuing specialization; the most preferred specialty was restorative dentistry⁽¹⁰⁾. Another study also showed that a quarter of dentists graduating over a period of four years pursued some type of postgraduate education with an increasing number of females with

postgraduate qualifications⁽¹⁴⁾. In Saudi Arabia, one study revealed that 77% of the male dentists graduating from a major university pursued postgraduate education, 17 % specializing in prosthodontics, 16% in Saudi board restorative dentistry and 14 % in advanced general dentistry⁽¹⁵⁾. The same study was done among female dentists where more than half of the respondents had postgraduate studies mainly 17% restorative surgery, 15% pediatric dentistry and 14% advanced general dentistry⁽¹⁶⁾. Furthermore, one study that identified the career and specialty aspirations among final year dentistry students showed that restorative/aesthetic dentistry and endodontics were the most preferred specialties⁽¹⁷⁾.

Whether dentists decide to pursue higher education following their graduation or directly enter general practice, is affected by several factors⁽⁷⁾. In USA, a strong predictor of private practice entry is educational debt⁽⁷⁾. This was also the case when the female dentist choice was influenced by her spouse or another family member who is a dentist⁽⁷⁾. Socioeconomic attainment and factors such as working hours, financial benefit, good job opportunities abroad, self-employment and having a dentist family member were significant predictors of career and specialty preferences.^(13,17,18) Interest in a specialty and challenging complexity of cases or intellectual content were also among the predictors of specialty choice⁽¹⁹⁾. The aim of this study was to identify trends in dental specialty and employment choice among Saudi male dentists graduating over a ten-year period from King Saud University (KSU). The frequency and most common specializations of the postgraduate dentists, as well as the most aspired ones among the general practitioners were determined.

METHODS

Observational descriptive study was conducted with the dental graduates of King Saud University Riyadh Saudi Arabia . Male dentists graduating from the dental college between years 2005 to 2015 were included in this study. The list of all the graduates included their contact information was taken from the student affairs at the college of dentistry and simple random sample was generated using computer software for inclusion of study participants. Those graduates whose contact information was missed were excluded from the study. The co-investigators contacted the participants via telephonic communication as it was difficult to reach each one of

those graduates in person and the email addresses of many of the graduates were not available. The questionnaire was developed for this study based on the literature search and previously published article on this topic. The items based on the objectives of the study were identified and included in the study mainly representing two sections. The initial demographic profile of the participants and later half related to the post-graduation specialty choices of the graduates. The questionnaire was viewed by two senior members (one consultant dentist, other epidemiologist and member medical education department) for face and content validity. The sample size was calculated with the margin of error of 5% and confidence level of 95, the prevalence was set at 77% based on a previous study¹⁵. The calculated sample size was 240 dental graduates.

Data were first entered in Microsoft Excel sheet then transferred to Statistical Package for Social Sciences (SPSS) file for analysis. Finally, data was cleaned, and new variables were computed. The descriptive statistics were computed most of variables and presented as frequency and percentages; as most of the variable were categorical. The trend chart was used to summarize the specialty choices for the last 10 years. For finding association between the specialty choices and other demographic variables Chi-square and Fisher's exact test was used where applicable. The p-value < 0.05 was considered significant for all applied statistical tests. Proposal was approved by King Abdullah International Medical Research Center. All the participants who were willing to be included in the study gave their verbal consent as they were approached through telephonic calls. The confidentiality and anonymity were maintained throughout the research and the contact information of the graduates was not used during all the phases of the research.

RESULTS

This study included 233 (out of 551 total) dental graduates from year 2005 to 2015. All the respondents were male and response rate was 87%. Majority of them were working in government sector, with private sector accommodating only 69 (30%) of the graduates. Almost half of the participants 114 (49%) were working as dental GP and had no specialization. Amongst those who had specialized most of them 78 (69%) had Saudi board certification as the highest acquired qualification followed by Master degree reported by 21 (29%) (**Table 1**).

Table 1. Demographic profile of participants (N=233)

Items/Variables		Frequency	Percentage
Age (years)	25-35	214	92%
	36-45	19	8%
Year of graduation	2005-2008	52	22%
	2009-2012	64	28%
	2013-2015	117	50%
Type of job	Government	164	70%
	Private	69	30%
Job title	GP	114	49%
	Resident	63	27%
	Assistant Consultant	26	11%
	Associate Consultant	19	8%
	Former Consultant	11	5%
Post-graduation	Yes	119	51%
	No	114	49%
Graduation country (n=113)	Local	61	55%
	Outside KSA	52	45%
Highest degree achieved (n=113)	Board Certificate	78	69%
	Master Degree	21	19%
	Doctorate	6	5%
	Fellowship	7	6%
	other	1	1%

Almost all the graduates were working as general dental practitioners 108 (95%) reported their willingness to do post-graduation degree. The most wanted specialty was prosthodontic reported by 35 (30%) of the dental GPs. The percentage of graduates getting higher degree internationally was slightly lower to those getting degree from Saudi Arabia. Those had post-graduation from foreign countries,

United State of America (USA) was the top destination mentioned by most of the specialists. Endodontic and prosthodontic were the most desirable specialties not only by the GP's, but also the post-graduation trend in these two specialties were reported highest with 28 (25%) and 22 (20%) respectively. (Tables 2 & 3)

Table 2. Specialty interests among general practitioners (N=114)

Items/Variables		Frequency	Percentage
Interested in post-graduation	No	6	5%
	Yes	108	95%
Specialty interested	Endodontic	18	16%
	Prosthodontic	35	30%
	Periodontics	8	7%
	Oral maxillofacial surgery	10	9%
	Orthodontic	13	11%
	Operative dentistry/ SBARD	17	15%
	Pedodontic	11	10%
	Community dentistry	1	1%
	Other	1	2%

Table 3. Summary post-graduation qualification (N=112)

Items/Variables		Frequency	Percentage
PG Country	KSA	61	55%
	USA	26	23%
	UK	8	7%
	Germany	4	4%
	Canada	3	3%
	Other	10	9%
Specialty	Endodontic	28	25%
	Prosthodontic	22	20%
	Periodontics	8	7%
	Oral maxillofacial surgery	4	4%
	Orthodontic	17	15%
	Advance General Dentistry	6	5%
	Operative dentistry/ SBARD	18	16%
	Pedodontic	5	5%
	Community dentistry	2	2%
	Other	2	2%
Satisfaction with the current specialty	Not Satisfied	15	13%
	Satisfied	97	87%

The last 10 years trend showed that graduates joined post-graduation programs has lowered over the years. Initially in 2005 the number of graduates opting for local post-graduation degree was approximately similar to those doing international post-graduation. In the year 2009 most of graduates got the opportunity of joining local specialization program from Saudi Arabia whereas in the year 2011 major shift in the trend of international post-graduation was seen lowering the number of dentists joining local post-graduation programs. Between years 2005-2015 a significant difference was seen in the trend of post-graduation both locally and internationally with p-value 0.013. (Table 4, figure 1)

Table 4. Graduation trends over the ten years (2005-2014).

Year of graduation	Local qualified		International qualified		p-value
	Frequency	Percentage%	Frequency	Percentage%	
2005	7	12%	8	16%	0.013*
2006	4	7%	6	12%	
2007	7	12%	4	8%	
2008	3	5%	8	16%	
2009	17	28%	3	6%	
2010	4	7%	5	10%	
2011	6	10%	12	24%	
2012	6	10%	3	6%	
2013	3	5%	2	4%	
2014	4	7%	0	0%	
2015	0	0%	0	0%	
Satisfaction with post- graduation	Not satisfied		Satisfied		p-value
KSA/Local	9	60%	52	54%	0.038*
USA	3	20%	23	24%	
UK	0	0%	8	8%	
Germany	3	20%	1	1%	
Canada	0	0%	3	3%	
Other	0	0%	10	10%	

* Fishers Exact test significant at p-value <0.05.

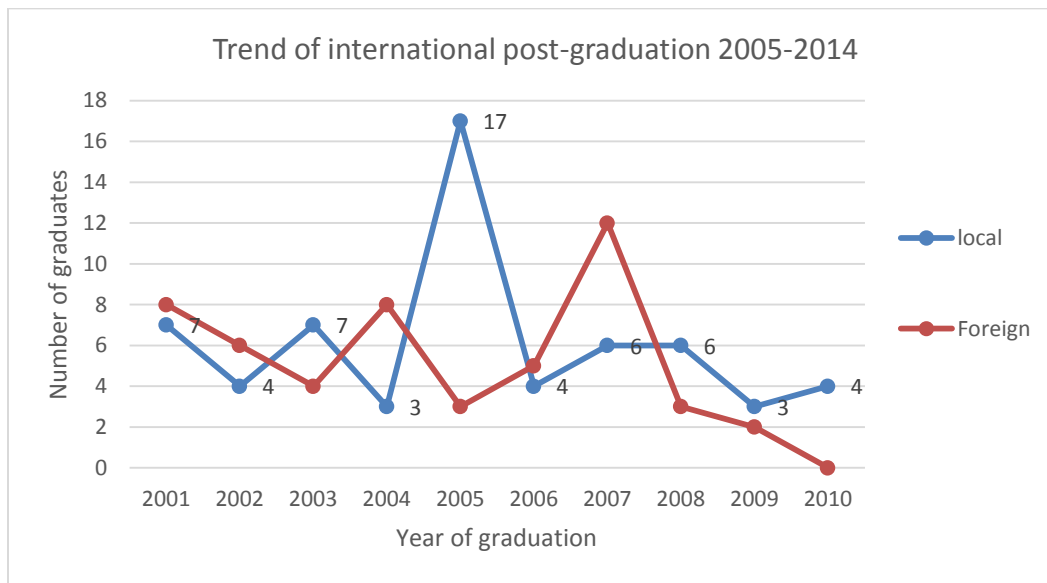


Figure 1: Trend of specialization over last ten years

DISCUSSION

In this study the change in the trend of specialty preferences and employment choices of dentists graduated from a major Saudi university over a decade was identified. During this time total 551 dental male students graduated from KSU and current study included 233 of them. The findings of this study may have implications for dental graduates who wish to pursue postgraduate education considering the needs of society and the current specialty choices and career options. Almost half of the subjects had postgraduate education and half of those pursued their continuing education locally and a quarter in the USA, which is concordant with a study done among females graduating from the same university in 2012⁽¹⁶⁾. In another study which was done with graduates of the same university, a higher percentage of dentists graduating from 1982-2004 had a postgraduate degree and the top-ranking specialty was prosthodontics followed by the Saudi board of Advanced Restorative Dentistry (SBARD) and advanced general dentistry (AGD)⁽¹⁵⁾. The current study showed a shift in the previously reported trend, with endodontics coming on the top followed by prosthodontics. Regarding occupation, dentists in this study were predominantly employed in the governmental sector and had a similar distribution to other studies done in Saudi Arabia in the academic and private sectors^(15,16). This highlights the fact that government sector still remains the popular sector for employment preferences, similar trend is seen in other countries as well⁽²⁰⁾.

Regarding the trend of national vs international specialization over the past 10 years, local

postgraduate education was highest in 2009 and decreased steadily thereafter. On the other hand, international education reached its peak in 2011 after which it sharply declined. The important finding to note here is that during 2011 may be the opportunities provided by the government for international post-graduation were more widely available thus the number of graduates opting for the internal post-graduation increased and inversely declining the local post-graduation. It is also important to note that local and international education experiences were significantly different across the years and have been drastically declining. This decreasing trend in specialization whether local or international, can lead to a lack of skills and expertise in dentistry in KSA which will in turn impact the dental services provided to the Saudi public in the future⁽¹⁾.

Most of the post-graduates were overall satisfied with their current specialty with a significantly higher satisfaction for those who received their postgraduate education locally. This can be explained by several factors which might relate to prefer education in the home country where it is also possible to be working even in part-time jobs along with continuing education. Family and social support are also potential factors that increase postgraduates' satisfaction with local education and their potential absence in overseas education can hinder the learning experiences of students⁽²¹⁾. In terms of employment, more general practitioners were employed in the government sector whereas the postgraduates were more into private sector. The fact that many postgraduates want to work independently running their own setup could be one of

the reasons behind this finding. But nonetheless this fact should not be overlooked, that although 95% of the GPs wanted to do post-graduation they still have not been able to do so while working at their current position. The economic and professional security that a government position provides might stand in the way of pursuing a postgraduate degree which was also reported by other studies as influencing factors on the career plans.^{12, 22} The general practitioners are most likely stuck in their career to a level that prevents them from deciding to continue their studies/training post-graduation.

Strengths and limitations

This study identified the change in trend of the career preferences and specialty choices of Saudi dentists over a period of ten years which is relatively a long period. It also utilized probability random sampling when selecting the participants. This sampling method reduced the selection bias of participants and increased the study's internal validity. Limitations of the current study include being a single-center study, limited to graduates of one university. This might have reduced the generalizability of our findings to the other dentistry graduates in the Kingdom. However, it is important to note that we tried to reduce this bias by comparing our results with the results of other similar studies which can infer better external validity. We therefore recommend conducting multi-center studies that can provide data on the dental specialization and career options from the graduates of different colleges.

Another limitation of this study is that it only included male dentists. This was mainly due to the fact that the education of males and females in the Saudi Arabian context occurs in different colleges. Also, the research team members were males so contacting female graduates was relatively difficult in terms of cultural constraints. Hence, the career and specialty preferences of female dentists cannot be inferred from this study neither can any difference among these two groups. We therefore recommend performing a similar study among female dentist graduates.

As this was a questionnaire based study using telephone interviewing, another possible limitation is the social desirability bias. This is the case when the respondents might have given inaccurate responses that are more socially acceptable. This can lead to an overestimation of the responses relating to interest in specialization.

CONCLUSIONS AND RECOMMENDATIONS

Specialization in the Saudi dentistry field is experiencing a decline in the number of graduates, both locally and internationally. Despite the fact, that almost all the general practitioners who graduated from KSU during the past ten years show an interest in pursuing a postgraduate degree, this will only remain a wish unless it is brought into implementation. From here arises the importance of career and specialization orientation especially among the final year students to guide them in choosing their future specialties while considering the needs and requirements of the community. This will be in line with the country's recent Vision 2030 which calls and promotes specialization in health care services. Failure to do so might result in a shortage of skills and expertise in the field. It is also recommended to conduct a larger multi-institutional study that identifies the specialization and career options of dentists. Finally, dental needs should be formally recognized and developed within KSA to ensure that the needs of the community are addressed in the future.

Disclosure

Ethical approval was obtained from the King Abdullah Inter Medical and Research center Riyadh, Saudi Arabia.

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