



Dental graduates and dental student's choice of specialties and factors influencing specialty training selection

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Abstract

Objectives: The goals of this study were to: 1) evaluate groups of dental graduates and dental student's choice of postgraduate dental specialties selection, and 2) identify factors affecting their decision to pursue specialty training.

Materials and Methods: This is a cross-sectional study using questionnaires. All participants were from the Faculty of Dentistry, Mahidol University, Thammasart University, Srinakharinwirot University, and postgraduate applicants for the academic year 2014, Mahidol University. Data were analyzed using descriptive statistic.

Results: Total respondents were 567. Ninety-three, 86, 59, 50 and 279 were dental graduates from the Faculty of Dentistry, Mahidol University in 2012, the sixth-year dental students from the Faculty of Dentistry, Mahidol University, the fifth-year students from the Faculty of Dentistry, Thammasart University, the sixth-year students from the Faculty of Dentistry, Srinakharinwirot University, and postgraduate applicants for the academic year 2014, Mahidol University. Results showed that Mahidol University and the residency training programs were their first choice of postgraduate university and preferred program. The most preferred specialty was Oral and Maxillofacial Surgery. Most of respondents were not interested in a specialty training combined with a doctoral program but were interested in dual degree programs in collaboration with other international universities. Prosthodontics was the most preferred dual degree program. Reasons affecting postgraduate program selection were to gain more clinical skill, expand knowledge, get promotion at current workplaces, and to earn higher income, respectively. Fifty-three percent of the postgraduate applicants stated no financial difficulties regarding tuition fees.

Conclusion: Mahidol University was the first choice for pursuing postgraduate dental education. Applicants considered clinical-training education to be the most important determinant in program selection. Applicants were interested in dual programs in collaboration with other international universities more than combined specialty training and a doctoral program. Oral and Maxillofacial Surgery, Prosthodontics, Endodontics, and Orthodontics were the most desired specialized programs.

Keywords: postgraduate dental education, dental students, dental specialties, clinical training, dental specialties selection

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Introduction

Thailand has an area of 514,000 kilometers and a population of 64,623,000 people from a recent survey in April, 2014¹. Currently, there are 13,138 dentists in the country with the ratio of dentists to population of 1:5,000². The country has seen an increasing number of dentists over the last five years². At present, there are eight public dental schools and two private dental schools which provide a D.D.S. (Doctor of Dental Surgery degree) program³. It is reported that 3,152 out of 13,138 dentists continued their postgraduate dental education². The number of applicants to postgraduate programs is also increasing significantly.

In other countries, a handful of studies regarding student's perspective such as undergraduate students' perceptions of future dental specialties selection, postgraduate students' discernment or plan after graduation, were reported⁴⁻⁷. In the United State of America, the survey has been distributed and continuously data was showed trend of undergraduates in selecting postgraduate program and specialty training. On the other hand, In Thailand, very little information is collected on why students choose a specific field of study or program within that field. As we know that the clinical training programs are more popular. Nevertheless, there is no statistically data to support.

The Faculty of Dentistry, Mahidol University offers a wide variety of postgraduate education programs. Due to transitions in the society and student generation, which is now a generation ME, the perception and factors affecting the decision in choosing postgraduate dental programs have definitely changed. In a previous study done at Harvard School of Dental Medicine (HSDM) from 2004 to 2007, results showed that an average of 87.6% of graduates continue their training in postdoctoral programs, with 72.9 % specializing and 14.7 % pursued

advanced training in general dentistry⁴. Another study was a survey questionnaire to fourth-year dental students and advanced standing students at School of Dental Medicine, University of Pennsylvania, USA. Their results showed an overall response rate of 83%. The majority (88%) was between the ages of 20-29 years old, 9% were between the ages of 30-34 years old and 2% were between 35-39 years old⁴. Debt was a statistically significant factor ($p < 0.001$) in choosing specialty training or career independent of gender, age, or course duration. Satisfaction providing care in a specialty or field was identified as the single most important factor in choosing a specialty career. Half of the respondents had decided not to specialize. Pursuing a postdoctoral study in general dentistry and private practice in general dentistry were the most commonly reported plans after completion of dental school.

The information of the undergraduate students' perceptions and factors influencing their specialty training selection will help Postgraduate Program Directors and the Postgraduate Education Unit to improve mentoring and coun-seling concerning their career-path. In addition, the results could benefit the postgraduate programs that might be less-favored among the applicants to attract more candidates. Furthermore, new accreditation standard requirements consider student satisfaction as part of the institution evaluation⁸. Thus, knowing these data would be very helpful in improving the management within these postgraduate programs in the hope of eventually developing future integrated programs for the new generation of postgraduate students.

The goals of this study were to: 1) evaluate groups of dental graduates and dental student's choice of postgraduate dental specialties selection, and 2) identify factors affecting their decision to pursue specialty training.

Materials and methods

Subject selection

This is a cross-sectional study using a questionnaire. Exemption for ethical approval was obtained from the Ethical Committee (MU-DT/PY-IRB 2013/037.0708) Faculty of Dentistry and Faculty of Pharmacy, Mahidol University. The questionnaire contained multiple choice questions and it is composed of age, gender, current employment status, the most desired university for postgraduate program, the most desired postgraduate program available at Mahidol University, the most desired specialty program, the interest in a combined doctoral program offered by Mahidol University and the interest in dual programs in collaboration with Mahidol University and other international universities. This report received permission from the Deputy Dean of Post Graduate Education, Faculty of Dentistry, Mahidol University. Questionnaires were hand-distributed during the academic year 2013 to dental graduates from the Faculty of Dentistry, Mahidol University in 2012, the sixth-year dental students from the Faculty of Dentistry, Mahidol University, the fifth-year students from the Faculty of Dentistry, Thammasart University, the sixth-year students from the Faculty of Dentistry, Srinakharinwirot University, and postgraduate applicants for the academic year 2014, Mahidol University. All respondents acknowledged that this survey would not affect their postgraduate programs acceptance results.

Statistical Analysis

The data were manually entered and stored in electronic format as a Microsoft Excel 2010 file. The data were analyzed using descriptive statistics with statistical software (Statistical Package; SPSS Version 18, Microsoft, USA).

Results

A total of 567 respondents completed questionnaires. Table 1 shows the results from dental graduates from the Faculty of Dentistry, Mahidol University in 2012. From all respondents (N=93), male and female students were 22% and 78%, respectively. Most of the respondents would be working at government hospitals (73%). The most desired universities to continue a postgraduate education were Mahidol University (81%), followed by Chulalongkorn University (12%), Khon Kaen University (3%), and others (4%). The most preferred program duration was 2 to 3 years (83%), 1 year (10%), and 3 to 4 years (6%). Sixty-five percent of respondents preferred residency training programs while 28%, 5%, and 2% chose a higher graduate in clinical science, master, and doctoral programs, respectively. The most preferred specialty training was Oral and Maxillofacial Surgery and Endodontic, at 20% while 16% and 8% preferred Orthodontics and Pediatrics, respectively. Most respondents (58%) were not interested in specialty training combined with a doctoral program offered at Mahidol University. However, 73% were interested in dual degree programs in collaboration with Mahidol University and other international universities. If the dual programs were to be offered, Prosthodontics was the most preferred specialty training among respondents (18%).

Table 2 shows results from the sixth-year dental students from the Faculty of Dentistry, Mahidol University. From all respondents (N=86), two of them did not want to pursue postgraduate study. Male and female students were 40% and 60%, respectively. The most desired university to continue their postgraduate education was Mahidol University (83%), followed by Chulalongkorn University (13%). The most preferred program duration was 2 to 3 years (73%), 1 year (21%), and 3 to 4

years (6%), respectively. Forty percent of respondents preferred residency training programs while 37% and 23% chose a higher graduate in clinical science and master programs, respectively. The most preferred specialty training program was Prosthodontics (28%), Oral and Maxillofacial Surgery (25%), Endodontics (18%), Orthodontics (14%), General

dentistry (8%) and Pediatrics (7%), respectively. Most respondents were not interested in a postgraduate specialty training combined with a doctoral program (57%). However, 63 % were interested in the dual degree programs in collaboration with Mahidol University and other international universities. If the dual programs were to be offered, Prosthodontics was the

Table 1 Data from dental graduates from the Faculty of Dentistry, Mahidol University in 2012 presented by number and percentage

Topic		N	n	Percentage (%)
Gender	Male	93	20	22
	Female		73	78
Current Employment	Government Hospital	93	68	73
	6 th Year Student		20	22
	NA		3	3
	Faculty Staff		2	2
Most Desirable University	Mahidol	93	75	81
	Chulalongkorn		11	12
	Khon Khan		3	3
	Etc.		4	4
Preferred Program Duration	2-3 Yr.	93	77	83
	1 Yr.		9	10
	3-4 Yr.		6	6
	NA		1	1
Preferred Specialty Training Program	Residency	93	60	65
	Higher Graduate		26	28
	Master		5	5
	Doctoral		2	2
Preferred Specialist Program	OMFS	60*	19	20
	Endodontics		19	20
	Orthodontics		15	16
	Pediatrics		7	8
Interested in Doctoral Combined Program at Mahidol	No	93	54	58
	Yes		38	41
	NA		1	1
Interested in a Dual Program collaborate with international universities	Yes	92 ^β	68	73
	No		24	26
Preferred Specialist in a Dual Program	Prosthodontics	44 ^α	25	18
	OMFS		7	5
	Endodontics		6	4
	Orthodontics		6	4

* Only 60 respondents answered, ^β Only 92 respondents answered, ^α Only 44 respondents answered

most popular among the respondents (57%), followed by Oral and Maxillofacial Surgery (15%), Endodontics and Orthodontics (14%), respectively.

Table 3 reveals results from the fifth-year students from the Faculty of Dentistry, Thammasart University. From all respondents (N=59), fourteen of them did not want to pursue a postgraduate study. Male and female students were 22% and 78%, respectively. The most desired university was Mahidol University (57%), followed by Chulalongkorn University

(19%), Chiang Mai University along with study abroad (11%), and Khon Khan University (2%), respectively. The most preferred programs were residency training (71 %), a higher graduate training (20 %), master (7%) and doctoral programs (2%), respectively. The most preferred specialty training programs were Implant and Orthodontics (24%), followed by Oral and maxillofacial surgery (22%) and Prosthodontics/ Implant, Pediatric and General dentistry programs (10%), respectively.

Table 2 Data from the sixth-year dental students from the Faculty of Dentistry, Mahidol University presented by number and percentage

Topic		N	n	Percentage (%)
Gender	Male	86	34	40
	Female		52	60
Most Desirable University	Mahidol	82 [©]	68	83
	Chulalongkorn		11	13
	Etc.		3	4
Preferred Program Duration	2-3 Yr.	82 [©]	60	73
	1 Yr.		17	21
	3-4 Yr.		5	6
Preferred Specialty Training Program	Residency	83 [⊙]	33	40
	Higher Graduate		31	37
	Master		19	23
Preferred Specialist Program	Prosthodontics	71 [*]	20	28
	OMFS		18	25
	Endodontics		13	18
	Orthodontics		9	14
	General		6	8
	Pediatrics		5	7
Interested in a Doctoral Combined Program	No	84 [¥]	48	57
	Yes		34	41
	NA		2	2
Interested in a Dual Program collaboration with international universities	Yes	84 [¥]	53	63
	No		20	24
	NA		11	13
Preferred Specialist in a Dual Program	Prosthodontics	44 ^β	25	57
	OMFS		7	15
	Endodontic		6	14
	Orthodontics		6	14

[©] Only 82 respondents answered, [⊙]Only 83 respondents answered, ^{*} Only 71 respondents answered,

[¥] Only 84 respondents answered, ^βOnly 44 respondents answered

Table 3 Data from the fifth-year dental students from the Faculty of Dentistry, Thammasart University presented by number and percentage

Topic		N	n	Percentage (%)
Gender	Male	59	13	22
	Female		46	78
Further Education	Male	14	3	-
	Female		11	-
Most Desirable University	Mahidol	46*	26	57
	Chulalongkorn		9	19
	Chiang Mai		5	11
	Abroad		5	11
	Khon Khan		1	2
Preferred Specialty Training Program	Residency	45 ^β	32	71
	Highergraduate		9	20
	Master		3	7
	Doctoral		1	2
Preferred Specialist Program	Implant	29 ^α	7	24
	Orthodontics		7	24
	OMFS		6	22
	Pros/Implant		3	10
	Pediatrics		3	10
	General		3	10

* Only 46 respondents answered, ^β Only 45 respondents answered, ^α Only 29 respondents answered

The next responding group was the sixth-year students from the Faculty of Dentistry, Srinakharinwirot University (Table 4). From all respondents (N=50), male and female students were 20% and 80%, respectively. Most respondents (70 %) would like to continue postgraduate study. Mahidol University (38%) was ranked number one, followed by Chulalongkorn University (30%), aboard (12.5%), Chiang Mai University (10%), Srinakharinwirot University (7.5%), and Khon Kaen University (2%), respectively. Fifty-five percent of respondents preferred a residency training program while 17.5%, 15%, and 12.5% preferred a doctoral, a higher graduate in clinical science and master programs, respectively. The most preferred specialty training was Oral and Maxillofacial Surgery (35%), then Orthodontics (23%), Prosthodontics (16%), and Endodontics and Oral diagnosis/Oral medicine programs (13%), respectively.

The last responding group was postgraduate applicants Mahidol University for the academic year 2014 (Table 5). From all respondents (N=279), male and female were 40% and 60%, respectively. Sixty-eight percent of respondents were between 26-30 years old, 22% were between 20-25 years old, and 8% was in the 30-35 years old age group, respectively. Most of respondents preferred to continue their postgraduate education in Thailand (95%). Twenty-sixth percent of respondents graduated from Chulalongkorn University, 23%, 11%, 10%, and 9% graduated from Mahidol University, Chiang Mai University, Khon Kaen University, and Prince of Songkla University, respectively. Most were working in government hospitals/sectors (77%). The most desired university was Mahidol University (65%), followed by Chulalongkorn University (27%), and Chiang Mai University (7.5%), respectively. Sixty-five percent of respondents preferred

Table 4 Data from the sixth-year dental students from the Faculty of Dentistry, Srinakharinwirot University presented by number and percentage

Topic		N	n	Percentage(%)
Gender	Male	50	10	20
	Female		40	80
Further Education*	Yes	50	35	70
	Not sure		8	16
	No		6	12
	Other major		1	2
Desired No.1 University	Mahidol	40*	15	38
	Chulalongkorn		12	30
	Abroad		5	12.5
	Chiang Mai		4	10
	Srinakarin		3	7.5
	Khon Khan		1	2
Preferred Program	Residency	40*	22	55
	Doctoral		7	17.5
	Higher Grad		6	15
	Master		5	12.5
Preferred Specialist Program	OMFS	31 ^β	11	35
	Orthodontics		7	23
	Prosthodontics		5	16
	Endodontics		4	13
	Oral Medicine		4	13

* Only 40 respondents answered, ^β Only 31 respondents answered

residency training programs, 20%, 10%, 2.5%, and 0.7 % were interested in a master degree, higher graduate in clinical science, master program (international), and a doctoral program, respectively. The most preferred specialty training was Orthodontics (39%), then Prosthodontics (18%), Pediatrics (11%), and Periodontology programs (9%), respectively. The reasons affecting applicants' decisions for choosing postgraduate programs were to gain more clinical skill, to expand their knowledge, to get promotion at their current workplaces, and to earn more income, respectively. Fifty-three of the applicants answered that they did not have any financial difficulties regarding tuition fees.

Discussion

Most respondents in this study reported

that they would like to pursue a postgraduate education. There are many factors for undergraduate students or dental graduates in selecting specialty programs. From a direct-interview with some respondents, we found that these students would choose a specialty area if they were well-mentored at undergraduate level. This is similar to the previous study suggesting that the influence of mentors/instructors as role models has been known to have a positive impact on a student's specialty choice⁵. As expected, undergraduate student would not prefer to continue their education in a doctoral program as much as specialty training programs.

These results are similar to the previous report whereby students ranked academics second as the field with the best future in terms of the overall profession, but only 1%

Table 5 Data from postgraduate applicants for the academic year 2014, Mahidol University

Topic		N	n	Percentage(%)
Gender	Male	279	112	40
	Female		167	60
Age	26-30 Years	279	190	68
	20-25 Yr		61	22
	30-35 Yr		22	8
	>36 Yr		6	2
Preferred Dental School For Post Grad	Thailand	279	265	95
	Not Sure		13	5
	Abroad		1	0.4
Undergrad School	Chulalongkorn	278*	73	26
	Mahidol		64	23
	Chiang Mai		30	11
	Khon Kaen		28	10
	Songkhla		24	9
	Srinakarin		21	7.5
	Thammasart		20	7
	Naresuan		13	5
	Rangsit		5	2
Current Workplace	Government Hospital/Sectors	277 [®]	215	77
	Private Hospital/Dental Clinic		42	15
			14	5
	University Staff		6	2
Desired No.1 University	Mahidol	276 ^β	180	65
	Chulalongkorn		75	27
	Chiang Mai		21	7.5
Preferred Program No.1	Residency	276 ^β	181	65
	Master		57	20
	Higher Graduate		29	10
	Master Inter		7	2.5
	Doctoral		2	0.7
Preferred Specialist Program	Orthodontics	250 [©]	109	39
	Prosthodontics		49	18
	Pediatrics		30	11
	Periodontology		26	9
	Endodontics		18	6.5
	General Dentistry		18	6.5
Factors Affecting Continuing PG Level ^α	More Clinical Skill		256	92
	Knowledge		242	87
	Promotion		143	51
	Income		117	42
Financial Difficulty	No	279	147	53
	Yes		130	47
	NA		2	0.7

* Only 278 respondents answered, [®] Only 277 respondents answered, [©] Only 250 respondents answered,

^β Only 276 respondents answered, ^α could choose more than one answer

planned to enter academic careers immediately after graduation^{3, 5}. This could lead to a shortage of academic faculty in the future. It is also noticeable that income was ranked as the lowest factor influencing the decision. It might be because of the Asian culture where finances are a personal issue and individuals are not comfortable discussing it. From previous study, applicants chose specialized programs valued more highly the possession of special skills or talents unique to their specialty ($p=0.00$), intellectual content of the specialty ($p=0.00$), challenging diagnostic problems ($p=0.00$), prestige within the dental profession ($p=0.01$), and lack of overcrowding in the field ($p=0.04$)⁴.

Those who chose general dentistry more highly valued the factor “unsure of specific specialty or enhancement of clinical skills” ($p=0.00$). According to the American Dental Education Association (ADEA) 38.6% of dental school graduates pursue a residency in advanced general dentistry or one of the nine recognized dental specialties: Orthodontics and Dentofacial Orthopedics, Pediatric Dentistry, Periodontics, Prosthodontics, Oral and Maxillofacial Surgery, Oral and Maxillofacial Pathology, Oral and Maxillofacial Radiology, Endodontics, and Dental Public Health⁷.

However, there are limitations to our study. A modified questionnaire containing more in-depth questions such as feeling of unpreparedness to enter private practice after graduation from dental school; desire to increase knowledge and clinical skills in what area; more students’ suggestions they need in the future to achieve a better, more representative response which residency program attracts them the most; teaching and research opportunities, etc. should be added. The findings, hopefully, will provide useful data to improve what students’ needs for and a benefit to program directors as they strive to make their programs as attractive as possible to top candidates.

In conclusion, this study revealed that Mahidol University was the first choice for

pursuing postgraduate dental programs. Applicants consider clinical-training education to be the most important determinant in program selection. Applicants were interested in dual programs in collaboration with other international universities more than combined specialty training and a doctoral program. Oral and Maxillofacial Surgery, Prosthodontics, Endodontics, and Orthodontics were the most desired specialized programs.

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