Graduate orthodontic education in Turkey: the residents' perspective

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Abstract

The aim of the present study was to explore residents' perceptions of their educational and clinical treatment experiences including the number of clinical cases undertaken, patient completion rates, techniques utilised and the scientific component of Turkish graduate orthodontic programmes. Residents recorded in the list of Turkish Orthodontic Society were sent an e-mail to participate in a survey containing 46 multiple-choice questions and ten one-line answers. An e-mail with a personalised online link was sent to a total of 227 residents throughout the Turkey. Data were categorised, and basic statistics including chi-square comparative analyses were performed. A total of 136 (response rate of 59.91%) residents completed the survey. The majority of residents (58.08%) were either 'very satisfied' or 'satisfied' with their programme. Respondents said they have just the right amount of formal didactic teaching sessions or dedicated and protected academic time. Most residents (69.11%) indicated their programme offers training in numerous philosophies; whilst 97.79% said they have sufficient clinically based training and 42.64% said they have sufficient research-based training. Overall, residents in the Turkey are satisfied with their orthodontic programme. They receive comprehensive training with the opportunity to start and complete a significant number of their patients. The survey findings suggest that orthodontic programmes in Turkey are deficient in providing care to underserviced populations and disabled patients. Programmes could improve the opportunity for residents to treat patients requiring interdisciplinary treatment.

Introduction

Orthodontics is the oldest specialty in dentistry and graduates the most number of specialists each year (1). According to the American Dental Association, orthodontics was found to be the most popular of all the dental specialties (2). There are currently a total of 23 orthodontic residency programmes in Turkey and the number is increasing with new dental schools being opened.

The first investigation has been applied by Vander Linden to develop guidelines for countries about to embark on postgraduate education in orthodontics (3). Kerr et al. (4) compared training programmes in orthodontics in the United Kingdom and France. In 2000, Adamidis et al. (5) reported a survey of teaching contents and time allocation within the undergraduate orthodontic curriculum in 23 European countries (Turkey was not included). A series of surveys of orthodontic programmes examined the status of graduate orthodontic education, identified the strengths and weaknesses within programmes, collected information on the clinical and didactic curriculum, established a basis to compare programmes through time and identified educational trends in the US and Canada. However, these surveys were administered to programme directors, not the orthodontic residents' themselves (6–9). There have been two previously published surveys conducted on orthodontic residents in the United States (1, 10) and two in Canada (11, 12).

Twenty-three universities are providing dental education in Turkey and numerous residents are enrolled in orthodontic training programmes. These programmes range in length from 3.5 to 6.5 years, with some offering a M.Sc. and/or Ph.D. degrees. No previous study in Turkey has evaluated orthodontic graduate programmes from the residents' perspective.

The aim of the present study was to explore residents' perceptions of their educational and clinical treatment experiences including the number of clinical cases undertaken, patient completion rates, techniques utilised and the scientific component of Turkish graduate orthodontic programmes. The overall satisfactions of orthodontic residents with their programmes and their confidence to providing orthodontic treatment upon graduation were also investigated.

Materials and methods

A survey was created on the Question-pro website (www.questionpro.com). Residents recorded in the list of the Turkish Orthodontic Society were sent an e-mail to participate in a survey containing 46 multiple-choice questions and ten one-line answers. An e-mail with a personalised online link was sent to a total of 227 residents throughout the Turkey. The questionnaire link was added to the e-mail and residents were invited to participate in the survey anonymously. Reminders were sent out to residents who had not completed the survey. The survey was completed by an online programme. Totally, 136 residents answered all the questions. E-mail addresses of participants were recorded by the website programme anonymously. In this way, only one log in was provided for each individual e-mails.

As an exhortative to participate, residents who completed the survey in its entirety were entered into a random draw to win a LED curing light. It was emphasised to the residents in the e-mail that responses could not be traced, no personal information was collected and that results would be reported only as group data. The survey was divided into the following segments: demographics, reasons for choosing orthodontics, evaluation of their programme and future directions. The results were collected into a Microsoft Excel spread sheet and then categorised within different variables. All statistical analyses were performed using the Statistical Package for Social Sciences (SPSS), version 13.0 for Windows (SPSS Inc., Chicago, IL, USA). Basic statistics and chi-squared analysis were used to determine significant differences in gender, age and year of programme. When the *P*-value was less than 0.05, the statistical test was determined as significant.

Results

Response rate and demographics

The e-mail addresses of 227 residents were obtained from the Turkish Orthodontic Society. Of these residents, a total of 138 started and 136 completed the survey resulting in a response rate of 59.91%. It took an average of 16.19 min to complete the survey. A total of 68 (50%) men and 68 (50%) women participated. Most residents (67.65%) were in the age category of 25–29 years. Almost two-thirds of residents (62.50%) entered their residency programme directly from dental school. For those who had worked elsewhere before beginning the orthodontic residency, age and year of programme of the residents are illustrated in Table 1. Fifty respondents (36.76%) were paid salaries by the government as permanent staff (mean 2.46 ± 1.38 years). Chi-square analysis resulted in no statistically significant differences between the age categories, those who worked before orthodontic residency and the different years of the programme ($P > 0.05$).

Sixty-three respondents (46.32%) were of the opinion that they had too little exposure to orthodontics in their undergraduate dental curriculum, whilst 58 (42.64%) felt they had the right amount of exposure, seven (5.14%) had no exposure and eight residents (5.88%) said there was too much.

Overall satisfaction with programme

The majority of residents (58.08%) were either 'very satisfied' or 'satisfied' with their programme (Fig. 1). A total of 22 (16.17%) were 'somewhat dissatisfied', nine (6.61%) were 'very dissatisfied' and 26 (19.11%) were 'neutral'.

Most residents (48.52%) indicated that they have just the right amount of formal didactic teaching sessions or dedicated and protected academic time, 43 (31.61%) said that although these components were included in their programme on the paper, not enough time was actually allocated, 7 (5.14%) said there was too much and 20 (14.70%) said it was not offered at all.

When asked if their programme offers exposure and training to numerous orthodontic treatment philosophies, most (69.11%) said 'yes' whilst 42 (30.89%) said 'no'.

A total of 65 (47.79%) indicated they have the right amount of clinical-based training, two (1.47%) said there was too little, 68 (50%) said there was too much and one (0.73%) was unsure. The majority (52.94%) said that the amount of research based training was too little, 52 (38.23%) said that it was just about right, six (4.41%) said it was too much and six (4.41%) were unsure.

Scope of educational training

A total of 104 (76.47%) said they would be completing at least 70 patients by the end of their training programme (Fig. 2). Residents were asked how many orthognathic surgery, non-extraction, extraction patients, mixed dentition patients and adults they estimate that they will have completed from start to finish by the end of their programme. These results are presented in Table 2.

Nearly half of respondents (47.05%) said that their programme includes care for disabled or under-serviced patients, and 101 (74.26%) felt there was a balance between the education and service aspects of their programme.

Most residents (80.45%) indicated that they would be adequately prepared to enter the workforce after graduation, whilst 13.53% were unsure. The most of respondents (79.70%) said that a 40–48 months programme adequately prepares orthodontic residents. The majority of residents (88.97%) indicated that orthodontics education should be given by universities. When asked what should be the minimum full-time programme length for a graduate orthodontic programme, they stated that minimum educating period should be 3.90 ± 0.69 years.

When asked about the perception of orthodontics by dental specialties, 30 (22.05%) said that other dental disciplines have a strongly positive view towards orthodontics, 26 (19.11%) a somewhat positive view, 20 (14.70%) said neutral, 46 (33.82%) a somewhat negative view and 14 (10.29%) a strongly negative.

TABLE 1. Demographics of the respondents to the questionnaire

Age			Level of training			Worked before orthodontic residency		
Years	(*n* = 136)	Percent	Years	(*n* = 136)	Percent	Years	(*n* = 136)	Percent
<25	25	18.38	1st year	19	14.18%	0	85	62.50
25–29	92	67.65	2nd year	26	19.40%	1	37	27.21
30–34	17	12.50	3rd year	28	20.15%	2	9	6.62
35–39	2	1.47	4th year	22	16.42%	3	1	0.74
>40	0	0.00	>4	41	29.85%	>3	4	2.94

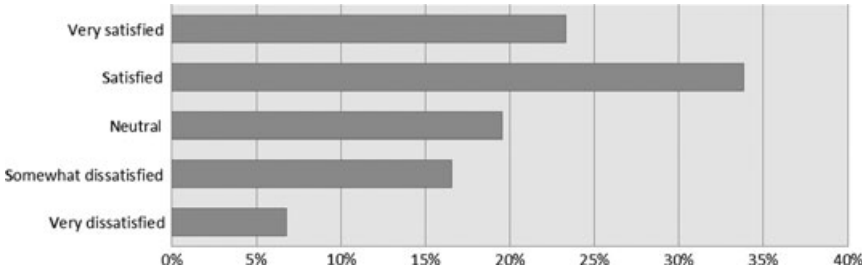

Fig. 1. Satisfaction of orthodontic residents with their programmes.

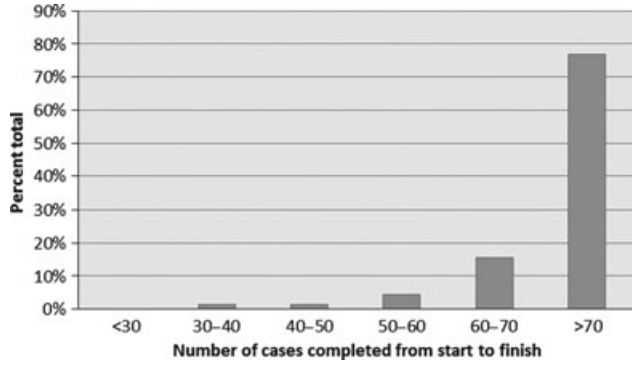

Fig. 2. Number of patients that residents expect to complete from start to finish by the end of their orthodontic training.

TABLE 2. Number of patients in specified areas that responding Turkish orthodontic residents estimate they will treat from start to finish during their training

Treatment Procedure	Average	Range
Orthognathic surgery	7.88	0–40
Extraction	47.74	8–160
Non-extraction	56.24	15–200
Mixed dentition	40.44	2–150
Adults	24.19	1–80

Only 83 (61.02%) residents said their programme has a formal interdisciplinary programme for treating patients. Residents were asked to identify the dental specialties they have collaborated with most in their training and were instructed to select all disciplines that applied. The most collaboration takes place with the disciplines of oral surgery, prosthodontics and periodontics (Fig. 3).

Discussion

The current study allowed orthodontic residents in Turkey the opportunity to confidentially and anonymously reflect on overall satisfaction with their graduate orthodontic educational programme and experiences. The advantage of an online questionnaire was that it allowed residents to complete the survey on their personal computer at a time and place convenient to them. They were not constrained by time limits or feeling rushed whilst attending an orthodontic resident conference.

Only one survey about Turkish Orthodontics was published by Kiyak et al. (13). These researchers investigated the results of a cross-national survey of orthodontists' preferences regarding initiating treatment at various dentition stages. There are no previously published surveys that evaluate the scope of the clinical and research curriculum of Turkish orthodontic residency programmes from the residents' views. In addition, to our knowledge there is no research in the literature that assesses the overall satisfaction of orthodontic residents with their programme (12).

There are few surveys of orthodontic residents described in the literature. Response rate of residents were 81% and 77% from two studies made in the US (1, 10). This rate was lower (64%) in the study of Keith which was conducted in the UK (14). A recent study performed in the US showed very lower response rate (40.60%) (15); however, the study that was made by the same researchers in Canada showed higher response rate (81.48%) (12). In the current Turkish study, 136 of the 227 residents who have completed the entire 56-item survey represented a response rate of 59.91%.

The majority of orthodontic residents (58.08%) in Turkey were satisfied with their programme. However, approximately half of remaining was neutral and the other half was not satisfied with their programme. As identifying the residents or programme would violate the ethics of the study, individual

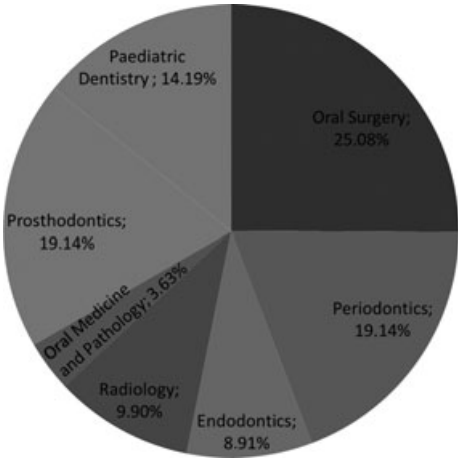

Fig. 3. Dental specialties that orthodontic residents say they collaborate with in their training.

programmes might consider performing regular feedback sessions, year-end reviews and exit surveys (12). Satisfaction rate were detected as 75.74% in United States (2) and 86.36% ratio was established in Canada (12). The duration of orthodontic training programme in Turkey is longer than in the US and Canada. Only 40.15% of respondents were paid by the government and they were employed as permanent staff for 2.5 years after the start of training. Some residents (30.89%) indicated they were only taught one treatment approach. Many factors affect residents' satisfaction rates. Some of these factors are training period and learning only one treatment approach. These results may be helpful to Turkish orthodontic programme directors to build upon the strengths and address perceived weaknesses of their programmes.

In the US study, 92.70% residents said their programme offers training in numerous treatment philosophies (2). This ratio was higher in Canadian study (100%) (12). In the current study, most of respondents (69.11%) gave a similar response, but this ratio was lower than in the US and Canada. Most residents (47.76%) felt their programme offered sufficient time for formal didactic teaching sessions and dedicated and protected academic time. Similar findings showed in the US (60.29%)(2) and Canada (66%) (12). However, 43 residents (31.61%) said that although these components were included in their programme, not enough time was allocated. Sixty-five respondents indicated they have the right amount of clinical-based training and 68 (50%) said there was too much. Canadian (93%)(12) and US residents (80.29%)(2) said they have the right amount of clinical-based training. It should be noticed that these results contain a subjective evaluation and residents may not know what they do not know. The restriction of asking residents to self-assess their capacity for their practice is that they lack the clinical experience essential to make an informed judgment even though they expressed confidence in their clinically readiness. The duration of didactic training may be useful for residents' education. However, this suggestion has two disadvantages. First, the amount of clinic-based training was decreased and second, this may cause decrease of the overall revenue of department. Another suggestion is to extend the programme duration or find additional time (e.g., evenings and weekends). Alternatively, residents may need to undertake an increased amount of self-directed study (12). Most residents (52.24%) said that the amount of research-based training was too little. Therefore, residents are supportive of the requirement to complete a M.Sc. and/or Ph.D. degrees.

All residents indicated that they expect to complete a minimum 30 patient cases from start to finish during their training, whilst the majority of the residents (76.87%) reported they would start and finish more than 70 cases. This is further evidence that there is a sufficient amount of 'clinical time' in Turkish orthodontic programmes. These programmes range in length from 3.5 to 6.5 years. In the US, only 5% residents reported they will start and finish more than 70 cases (2), and this ratio was higher in Canada (25%) (12). In the US, an orthodontic programme length was 24–30 month. This limited clinical exposure may limit their clinical knowledge, ability and expertise at the time of graduation. These results suggest that at least 3-year programmes afford residents increased clinical exposure and experience and provide them the opportunity to evaluate the stability of their treatment and the outcomes of different retainer prescriptions.

Canadian residents report that they will start and finish an average of 4.89 orthognathic surgery cases (8, 12) whilst US residents reported to start and finish an average of two cases (2). In the current study, respondents said that they would start and finish an average of 7.88 orthognathic surgery cases. Turkish orthodontic residents are likely to start more orthognathic surgery cases than their American and Canadian counterparts as surgical costs of orthognathic procedures carried out in the hospital are typically covered by provincial and territorial health care services.

Turkish residents appear to be obtaining adequate experience in treating adults and mixed dentition patients. Turkish residents stated that they treat on average 47.74 extraction and 56.24 non-extraction patients. U.S. residents said they treat on average 13 extraction and 24 non-extraction patients and Canadian residents said they treat 24 extraction and 31 non-extraction cases (2). These results support the notion that the current paradigm of treatment favours a non-extraction approach.

Disappointingly, only half of the orthodontic residents said that their programme provides care for disabled or underserved patients. Similar results were found in Canada whilst this ratio was 91% in the US. Orthodontic programmes in the United States may be fulfilling this important social service and instilling a sense of social consciousness and responsibility in their residents (2).

Lindauer (16) claims, 'no scientific data suggest that graduates of 24-, 27-, or 30-month programmes are less capable as clinicians or lack significant orthodontic knowledge compared with graduates of 36-month programmes.' However, in literature there are no studies that compare 24, 27 and 30-month programmes with each other. Noble et al.(2) suggest that graduates from longer programmes are likely to start and complete more patients and have both more diversified clinical education and greater exposure to a broader range of treatment philoso-

phies as well as more clinical and research time. Residents from longer programmes may be more prepared for clinical practice, and they may feel more confident. In the current study, most of respondents (79.70%) said that 40–48 months programme adequately prepares orthodontic residents and minimum educating period should be 3.90 ± 0.69 years. The majority of residents (88.97%) indicated that orthodontic education should be given at universities.

Another disappointing finding was that only 61.02% of orthodontic residents indicated that their programme contains a formal programme for interdisciplinary treatment of patients. Communication and collaboration with a team including other dental specialists, general practitioners and medical colleagues are fundamental to treating adult patients, patients with temporomandibular dysfunctions, orthognathic surgery patients and medically compromised cases. These programmes are uniquely positioned to provide residents with these invaluable opportunities to provide the best available treatment for mutual patients and learn interdisciplinary communication and teamwork.

Conclusions

Overall, residents in Turkey are satisfied with their orthodontic programme. They receive comprehensive training with the opportunity to start and complete a significant number of their patients. Residents stated that they had experienced sufficient clinical training in their orthodontic programmes. The survey findings suggest that orthodontic programmes in Turkey are deficient in providing care to underserviced populations and disabled patients. Programmes could improve the opportunity for residents to treat patients requiring interdisciplinary treatment.

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