

# Motivations and future practice plans of orthodontic residents in Saudi Arabia

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## ABSTRACT

**Aims:** This study aims to explore the criteria used by graduate students while selecting a career as orthodontists and their future aspirations.

**Materials and Methods:** A list of Saudi Board of Orthodontics (SB-Ortho) residents was obtained from the Central and Western regions of the Kingdom and all orthodontic residents (excluding the 1<sup>st</sup> year residents) were invited to participate in this survey. Permission to contact the orthodontic residents was obtained from the respective program directors. The final study sample composed of 36 orthodontic residents.

**Results:** About 39% of residents chose orthodontic specialty after graduation, nearly 33% selected the career during the undergraduate education while the rest chose the specialty at other stages. Approximately, 67% of the residents chose orthodontic specialty because it is intellectually challenging. Around 25% of residents choose orthodontic to improve their earning and 39% join orthodontic for job prestige. Around 50% of orthodontic Saudi residents planned to use self-ligating brackets; 63.9% planned to use invisalign; 86.1% plan to use temporary anchorage devices. About 72% of residents plan to use a cone-beam computerized tomography; 89% plan to use a digital imaging program; 39% plan to use indirect bonding; and 28% plan to use lingual orthodontics. More than half of the residents showed interest to participate in the research and about a quarter of them were willing to work in small cities.

**Conclusions:** Most of the orthodontic residents in Saudi Arabia take up this specialty as they felt that it was intellectually challenging. The SB-Ortho program adequately prepares the residents in all the modern aspects of the specialty.

**Key words:** Future practice plans, motivations, orthodontic residents, Saudi board of orthodontics

## INTRODUCTION

Orthodontics has gained immense popularity as a postgraduate dental specialty program in Saudi Arabia. The Saudi Board of Orthodontics (SB-Ortho) offers a 5 year post-graduate level clinical training in the field of orthodontics. This program is available in the central and Western regions of Saudi Arabia. SB-Ortho currently has 42 residents, from these two regions.

Several surveys have reported on the job satisfaction, life-style, career of orthodontic residents in the United States,<sup>[1,2]</sup> Canada<sup>[3,4]</sup> and United Kingdom (UK).<sup>[5,6]</sup> These studies provide

a glimpse of psychology of students in selecting orthodontics as their preferred specialty. These studies showed that most orthodontic residents were interested in private practice after graduation, with only a few expressing an interest in academics.

Recognizing the motivation of dental students in choosing orthodontics as a career specialty might provide valuable information pertaining to the general perception among graduates about this specialty. Furthermore, investigating the future practice patterns of orthodontic residents might shed light on how this specialty is developing. By identifying specific orthodontic techniques that residents plan to use after graduation, educators have to know whether their program structure meets the expectations of their residents. This

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information, if required, could be utilized by the SB-Ortho program directors to modify their curriculum. This would ensure that orthodontic residents not only graduated with the appropriate knowledge and training, but were also satisfied with their residency program.

The reasons provided by graduate students in choosing orthodontics as their specialty has not been previously investigated in Saudi Arabia. This study hopes to explore the criteria used by graduate students while selecting a career as orthodontists and their future aspirations.

## MATERIALS AND METHODS

This cross-sectional survey was conducted in June 2012 using a self-administrated questionnaire. Ethical approval for the study was obtained from the directors of the SB-Ortho the central (Riyadh) and Western (Jeddah) regions. A list of SB-Ortho residents was obtained from the two regions and all orthodontic residents (excluding the 1<sup>st</sup> year residents) in were invited to participate in this survey. Permission to contact the orthodontic residents was obtained from the respective program directors. The final study sample composed of 36 orthodontic residents.

The questionnaire was adopted from the study conducted in US and Canada with minor modification to match Saudi context.<sup>[1,4]</sup> It was prepared to collect demographic data, information about reasons and timing for selecting orthodontic as specialty, history of application to the residency programs other than SB-Ortho, scholarship sponsor, willingness to work in small cities, interest to participate research, future practice plans after graduation (e.g. type of cases to be treated in future, treatment techniques, space closure mechanics, brackets' slot size to be used and brackets' companies).

A pilot study was performed at the Riyadh Medical Complex Hospital, prior to the start of the actual study. All orthodontic residents ( $N=4$ ) at the hospital expressed their willingness to participate in this questionnaire survey. The experience and the difficulties that the respondents faced while completing the questionnaire were recorded. Their suggestions were discussed and incorporated into the final questionnaire. The questionnaires were then mailed to the orthodontic residents individually.

Data analysis was carried out using Microsoft Excel 2002 (Microsoft Corporation, Seattle, WA, United States of America [USA]) and the Statistical Package for Social Sciences version 16 (SPSS Inc., Chicago, IL, USA). The frequency analysis and descriptive statistics were performed for all variables and the results were graphically represented.

## RESULTS

There were an equal number of male and female respondents. There was also an equal number ( $N=18$ ) of respondents from

both regions (central and western). Age of the respondents ranged from 25 years to 40 years [Table 1]. All residents had graduated from Saudi Arabian Universities (King Saud University - 19 and King Abdulaziz University - 17). The date of graduation of the residents ranged from 1993 to 2008. Half of the respondents graduated after 2003 [Figure 1]. Distribution of orthodontic residents in different level according to seniority in residency program from 2<sup>nd</sup> year (R2) to 5<sup>th</sup> year (R5) is illustrated in Table 2.

### Questionnaire

Demographic data	
Age	<input type="checkbox"/> <25   <input type="checkbox"/> 25-30   <input type="checkbox"/> 30-34   <input type="checkbox"/> 35-39   <input type="checkbox"/> >40
Gender	<input type="checkbox"/> Male   <input type="checkbox"/> Female
University	<input type="checkbox"/> KSU   <input type="checkbox"/> KAU   <input type="checkbox"/> Other (Specify) .....
Graduation year	.....
Residency area	<input type="checkbox"/> Central region   <input type="checkbox"/> Western region
Residency year	<input type="checkbox"/> R2   <input type="checkbox"/> R3   <input type="checkbox"/> R4   <input type="checkbox"/> R5

### Part 1: Factors affecting the choice of Orthodontic specialty

When did you decide to select orthodontics as your career specialty?

(You can choose more than one answer)

- A Before entering the College of Dentistry
- B During my study at the College of Dentistry
- C During my internship training
- D After graduation and during a dental residency
- E After graduation and during a period of time in practice
- F After graduation and during a private practice

Why did you choose orthodontics as your specialty?

(You can choose more than one answer)

- A Because its intellectually challenging
- B Because of influence of the family
- C Because I like working with younger patients
- D Because I like working with motivated patients
- E Because I had positive previous dental college experience
- F Because of teaching opportunities
- G Because of research opportunities
- H Because I have a passion for orthodontics
- I Because of the job prestige
- J Other (Specify) .....

How many times did you apply to program before getting accepted?  1 |  2 |  3 |  4 |  5

Was orthodontics your first choice?  Yes  No

Did you choose orthodontics as specialty for better earning?  Yes  No

Who is your financial sponsor during your training? (Specify) .....

Have you ever apply to be accepted in any other orthodontic programs before SBO  Yes  No

acceptance (inside/outside)? .....  
(Specify) .....

Around 39% of orthodontic residents indicated that they had selected the specialty of orthodontics prior to enrollment in dental school while one-third of them selected it during dental school [Figure 2]. All current orthodontic residents applied to

**Part 2: Future practice plans of orthodontic residents**

Your future practice plans after graduation

	Yes	No	Maybe
Do you plan to use self-ligating brackets (SLB) in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If yes, which SLB will you use: <input type="checkbox"/> Damon   <input type="checkbox"/> Smart Clip   <input type="checkbox"/> Speed   <input type="checkbox"/> In-Ovation   <input type="checkbox"/> other: .....			
Do you plan to use Invisalign in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to use TADs in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If yes, do you plan to place the TADs by yourself?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to use cone-beam computerized tomography in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to use a digital imaging program in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to use indirect bonding in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to use lingual orthodontics in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to perform 2-phase treatment in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to use functional appliances in your practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to receive other certification after graduation? (Specify).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to participate in a research?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you accept to work in small cities?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to treat orthognathic cases?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to treat craniofacial deformities?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you plan to treat cleft patients?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What brackets' slot size will you use in the future? <input type="checkbox"/> 0.018" <input type="checkbox"/> 0.022"			
What is the brackets' prescription that you are planning to use in future?(You can choose more than one answer)			
<b>Prescription</b>	<b>Yes</b>	<b>No</b>	<b>Maybe</b>
Andrews prescription	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Roth prescription	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MBT prescription	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alexander prescription	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Specify) .....			
What is the space closure mechanics that you are planning to use in future? <input type="checkbox"/> Sliding <input type="checkbox"/> Closing Loops <input type="checkbox"/> Both			
What is/are the brackets' company (ies) that you are planning to use in future? (You can choose more than one answer)			
<b>Company</b>	<b>Yes</b>	<b>No</b>	<b>Maybe</b>
Rocky Mountain orthodontics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ormco	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
American Orthodontics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GAC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TP Orthodontics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3M Unitek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Specify) .....			

the orthodontic residency program (SB-Ortho) at least once before they were accepted to the program [Table 3]. Current orthodontic residents were sponsored from different sources either governmental institution or self-sponsoring. Ministry of Health (MOH) was the main sponsoring agent of the Government for the residents [Figure 3]. Quarter of the residents chose to specialize in orthodontics for monetary benefits and the remaining 66.7% selected this specialty because they felt it was intellectually challenging [Figure 4].

Half of the orthodontic residents indicated that they prefer to use self-ligating brackets (SLB) in the future, around 64% were planning to use invisalign technology and 86.1% were planning

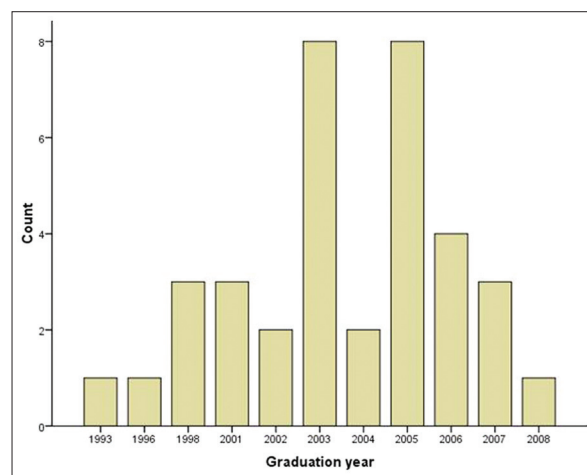


Figure 1: Graduation year for Saudi orthodontic residents

Table 1: Age group for Saudi orthodontic residents

Age	N (%)
25-30	9 (25)
30-34	22 (61.1)
35-39	4 (11.1)
>40	1 (2.8)
Total	36 (100)

Table 2: Residency level

Residency level	N (%)
R2	10 (27.8)
R3	9 (25)
R4	6 (16.7)
R5	11 (30.6)
Total	36 (100)

Table 3: Frequency of application to Saudi Orthodontic board

Frequency	Count (%)
Once	20 (55.6)
Twice	9 (25)
Three times	4 (11.1)
Four times	2 (5.6)
Five times	1 (2.8)
Total	36 (100)

to use temporary anchorage devices (TADs). More than 90% of residents were planning to place TADs themselves and about half of the residents were planning to participate in research in their future. Table 4 illustrates future practice plan for Saudi orthodontic residents.

Around 80% of orthodontic residents had planned to continue their studies after graduation from the residency program (SB-Ortho). Figure 5 summarizes their plans for future certificates.

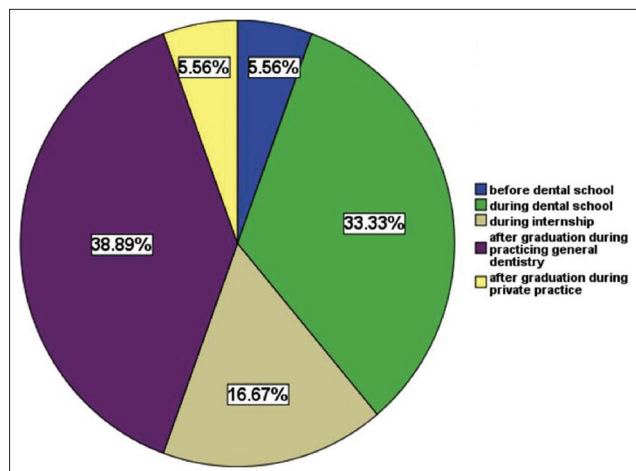
Bracket sizes 0.018" and 0.022" were popular in the orthodontic residents, 50% are planning to use bracket size 0.018" and 47.2% prefer bracket size 0.022" while 2.8% plan to use both sizes.

Only one resident preferred to use Andrews's prescription and only two preferred Alexandar prescription. On the other side, 31 and 26 residents intended to use Roth and McLaughlin, Bennett and Trevisi (MBT) prescriptions, respectively. None of the residents showed interest in using any other brackets prescription.

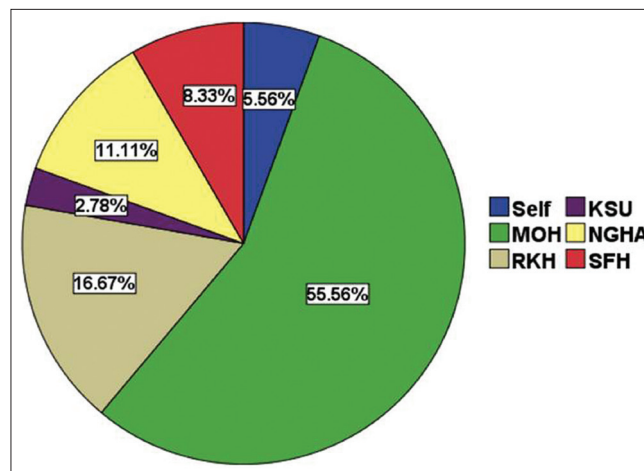
Regarding space closure mechanics, majority of orthodontic residents (75%) were using both mechanics for space closure (sliding and closing loops), 19.4% prefer to use sliding and 5.6% preferring closing loops.

**Table 4: Future practice plan for Saudi Orthodontic residents**

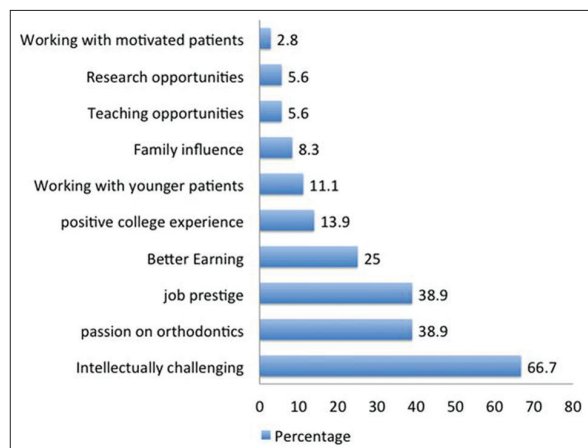
Residents' plan	Yes (%)	No (%)	Maybe (%)
Do you plan to use self-ligating brackets	50	5.6	44.4
Do you plan to use Invisalign	63.9	19.4	17.6
Do you plan to use TADs	86.1	5.6	8.3
Do you plan to place TADs by your self	91.7	2.8	5.6
Do you plan to use CBCT	72.2	0	27.8
Do you plan to use digital imaging program	88.9	0	11.1
Do you plan to use indirect bonding	38.9	22.2	38.9
Do you plan to use lingual orthodontic	27.8	50	22.2
Do you plan to perform 2 phases treatment	50	8.3	41.7
Do you plan to use functional appliances	69.4	8.3	22.2
Do you plan to participate in research	55.6	8.3	36.1
Do you accept to work in small cities	25	58.3	16.7
Do you plan to treat orthognathic cases	77.8	5.6	16.7
Do you plan to treat craniofacial deformities	55.6	22.2	22.2
Do you plan to treat cleft patients	55.6	11.1	33.3



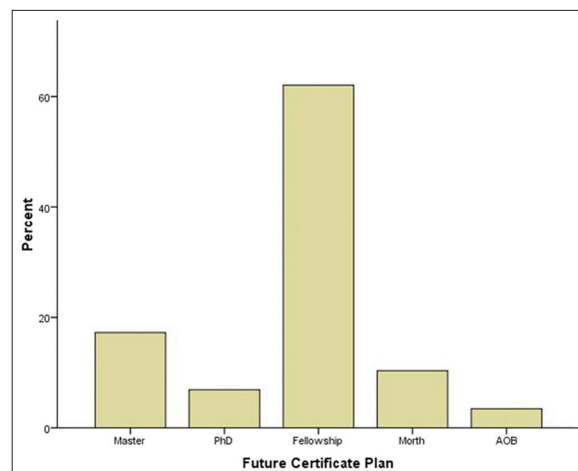
**Figure 2: Timing of selection orthodontics as a specialty**



**Figure 3: Financial sponsors for Saudi orthodontic residents**



**Figure 4: Factors influencing orthodontic residents to choose orthodontic specialty**



**Figure 5: Future certification plan for Saudi orthodontic residents**

From various companies providing brackets, Saudi orthodontic residents showed more interest in using brackets from 3M (80.6%) to Ormco (55.6%) companies in the future brackets provided from GAC Company were least attractive for Saudi orthodontic residents as only 13.9% of residents are planning to use such brackets. About 22% of Saudi orthodontic residents were interested to use brackets from Rocky Mountain or American orthodontics or TP companies and no one of the residents show interest to use brackets from any other company.

## DISCUSSION

Two studies<sup>[5,6]</sup> conducted among orthodontic residents in the USA and UK showed that job satisfaction was the most common reason for selecting the specialty of orthodontics. In Saudi Arabia, most of the residents felt that this branch of dentistry was intellectually challenging and they felt passionate toward this specialty. Similar observation has been reported in other studies as well.<sup>[2,4]</sup> Furthermore, our results were similar to the results of old studies conducted by Keith in UK and USA where intellectual challenge, passion for orthodontic specialty and job prestige were reported to be the most important factors influencing the residents choice of specialty.<sup>[6]</sup>

Noble *et al.* reported that about 48% of residents in Canada<sup>[4]</sup> and 66% of residents in USA<sup>[2]</sup> chose orthodontic specialty for monetary benefits. In Saudi Arabia, only 25% of Saudi residents chose orthodontic specialty for monetary benefits. This can be explained by the preference of Saudi orthodontists to work in governmental sectors than private sectors.

The tuition fees for most of the Saudi orthodontic residents were sponsored by the MOH. The main reason for this is the acute shortage of orthodontists in Saudi Arabia, especially in the government clinics.

Almost half of Saudi orthodontic residents (55.6%) were interested to participate in research, which is acceptable when compared to many other studies. In Canada, Noble *et al.* and associates found only 4% of residents were interested in research and academics.<sup>[4]</sup> In Saudi Arabia, orthodontic treatment is provided free of cost by the government, which may explain the reason for orthodontists' preference to work in the Government sector. Furthermore, the Government is allocating significant funds for research, which may also contribute toward the increasing interest in research in the orthodontic residents.

Half of Saudi orthodontic residents plan to use SLB after graduation, which is slightly less than the percentage reported in the United States (63.04%).<sup>[2]</sup> Also, the percentage of Saudi orthodontic residents preferring the use of invisalign (63.9%) was slightly lesser than orthodontic residents in the United

States (84.06%).<sup>[1]</sup> The recent introduction of SLB and invisalign in Saudi Arabian market may explain this finding. However, these modern orthodontic technologies are expected to grow in popularity in Saudi Arabia.

About 86.1% of orthodontic residents in Saudi Arabia plan to use TADs in their practice and all of them plan to place it themselves. This finding is similar to the study results from United States where 92.03% of them are planning to use TADs. This finding supports the popular belief that orthodontist would be the most qualified and trained professionals to place TADs.<sup>[7]</sup> Most of the residents are planning to use digital imaging programs and cone-beam computerized tomography, which reflect exposure of the residents to these technologies in the training program.

Few orthodontic residents in Saudi Arabia are planning to use indirect bonding and lingual orthodontics. However, in the United States 27.8% of the orthodontic residents were planning to use lingual orthodontic and 38.9% of them planned to use indirect bonding.<sup>[1]</sup> This is could be explained by the limited exposure to these techniques in the residency program and unavailability of specialized dental lab for making these appliances.

A quarter of orthodontic residents in Saudi Arabia were willing to work in small cities. This could probably result in shortage of personnel in the rural areas and the government may need to find a suitable solution to this dilemma.

3M Company brackets are available in most governmental training centers and this could be explained by the high popularity of 3M Company among Saudi orthodontic residents.

About half of the residents were willing to treat patients with craniofacial deformities and cleft lip and more than two-third of the residents were willing to treat orthognathic cases. This reflects the quality of training in SB-Ortho program that empowers every resident to handle difficult cases with confidence.

## CONCLUSION

Most of orthodontic residents in Saudi Arabia take up this specialty as they felt that it was intellectually challenging. The SB-Ortho program adequately prepares the residents in all the modern aspects of the specialty.

## REFERENCES

1. Noble J, Hechter FJ, Karaikos NE, Lelic N, Wiltshire WA. Future practice plans of orthodontic residents in the United States. *Am J Orthod Dentofacial Orthop* 2009;135:357-60.
2. Noble J, Hechter FJ, Karaikos N, Wiltshire WA. Motivational factors and future life plans of orthodontic residents in the United States. *Am J Orthod Dentofacial Orthop* 2010;137:623-30.

3. Noble J, Hechter FJ, Karaikos NE, Wiltshire WA. Resident evaluation of orthodontic programs in Canada. *J Dent Educ* 2009;73:192-8.
4. Noble J, Karaikos N, Wiltshire WA. Motivations and future plans of Canadian orthodontic residents. *Am J Orthod Dentofacial Orthop* 2009;136:644-50.
5. Keith O, Stephens CD, Proffit WR, O'Brien KD. A survey of the opinions of orthodontic specialist trainees in the U.K. *Br J Orthod* 1997;24:163-7.
6. Keith O, Proffit WR. Orthodontic training: The residents' perspective. *Am J Orthod Dentofacial Orthop* 1994;106:649-53.
7. Mah J, Bergstrand F. Temporary anchorage devices: A status report. *J Clin Orthod* 2005;39:132-6.

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