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Role of orthodontic treatment, faculty & practitioners in influencing career choices of dental students of Faisalabad Medical University

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ABSTRACT

BACKGROUND & OBJECTIVE: The number of orthodontic patients is increasing owing to various treatment and patient-related factors. This increased demand requires more orthodontists in the community. To determine the proportion of dental students interested in orthodontics, the significance of orthodontic-related encounters, and the contribution of orthodontic professors and practitioners as inspiration for student career decisions.

METHODOLOGY: It was a cross-sectional web-based survey. 163 students from Faisalabad Medical University's Dental Institute took part, and ethical approval was obtained. (ERC/FMU/2022-23/certificate No.48.

RESULTS: The majority of students (65.6%) knew an orthodontist in their community, and 31.9% had assisted in orthodontic practice. Students who had interactions with orthodontists, orthodontic residents, and hands-on experience with orthodontics were more likely to be interested in an orthodontic career. Advancements in the field of orthodontics also significantly influenced students' interest ($p < 0.001$). The mean motivation level for orthodontic education was 27.0 ± 6.20, indicating good motivation among dental students. Students with the highest interest in an orthodontic career had significantly higher motivation scores ($p < 0.001$).

CONCLUSION: The study highlights the importance of practical experience, exposure to the field, and innovative technologies in fostering students' interest and motivation for a career in orthodontics.

KEYWORDS: Orthodontics, Career Choice , Graduate Education , Residency and Internship.

INTRODUCTION

The first specialty to be developed in the dental meadow was orthodontics, also referred to as orthodontics and dentofacial orthopedics. Orthodontists cure malocclusions, which may be brought on by misaligned jaw relations or uneven tooth growth. Malocclusion, which describes improper dental alignment and the fit of the upper and lower teeth, is not a disease. Malocclusion prevalence varies [1] however, using indices for orthodontic treatment [2] that classify malocclusions according to severity, it may be estimated that close to 30% of the population has severe malocclusions to benefit from orthodontic treatment [3].

The need for orthodontic care is increasing daily and is expected to rise exponentially. Future demand for orthodontic treatment may rise as a result of the growing use of recent innovations like Temporary Anchorage Devices (TADs'), Aligners, soft tissue lasers [4], and digital impressions in combination with recently introduced technologies like virtual reality and artificial intelligence [5,6]. Patient-related factors contribute to this: the increasing usage of webinar platforms owing to the COVID-19 pandemic significantly impacted patients' self-notions, leading to a rise in demand for orthodontics [7]. The commencement of the epidemic also corresponded with a surge in patients suffering bruxism, which may necessitate orthodontic treatment in the years to come, as reported by 70% of dentists [8]. All of these data imply an increase in the need for orthodontic treatment.

In Pakistan, a bachelor's degree in dentistry is a 4 years program after higher secondary education. The next step after receiving an undergraduate education in the dental profession is to select a relevant field for brighter prospects. According to a few surveys, most newly graduated dental undergrad students opt to continue their studies toward a higher degree [9,10]. The choice of a dental student's postgraduate degree subject is influenced by various factors [11]. A literature review reveals several studies employed in different parts of the world to evaluate the interests of dental students in specialty programs and the factors responsible for their choices. Orthodontics is a popular specialization among dental school graduates because of its great quality of life and independent enterprise prospects [12,13].

According to a study done in Maharashtra, India [14], financial benefits were the main reason people chose orthodontics as a specialty, followed by the field's intellectual and clinical

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difficulty, which was supported by a few studies done in the US [15], Canada [16], the UK [17], and other countries. According to different research, financial considerations were one of the most prevalent factors likely to impact the choice of specialization among female dentistry students in Karachi, Pakistan [18]. Understanding the factors that influenced dentistry students to choose orthodontics as a profession may provide important information about the overall understanding among graduates of this strength [19]. Furthermore, it aids in teaching them about deceptive features and offering correct details on orthodontics so that they may make the greatest option for their future.

The objectives of this study were to determine the percentage of dental students passionate about orthodontics who are likely to apply to orthodontic residency programs, the significance of orthodontic-related schooling, and the impact of orthodontic faculty and practitioners as mentors on dental student career choices.

METHODOLOGY

A cross-sectional descriptive questionnaire survey was conducted. The dentistry students of Faisalabad Medical University participated in the current study. The study was conducted in September-October 2023. The institutional ethical review board's ethics committee approved the study's ethical conduct (Certificate No.48-ERC/FMU/2022-23/).

An epidemiological descriptive survey was undertaken with participants ranging from first-year to final-year students using the convenience sampling method since this may be the right time for them to judge their specialization and future working environment. The poll was created based on earlier research into the factors influencing students to choose oral and maxillofacial surgery careers [20]. There were a total of 25 questions. It asked about respondents' orthodontic experiences before to dental school (7 QUESTIONS), as well as their orthodontic-related dental school courses, and collected student ratings of orthodontic practitioners and faculty mentors. It includes information on whether respondents had rotations in specific locations related to orthodontics during their dental school education and their perceived level of interest in these rotations.

There were questions regarding their current interest in pursuing a career in orthodontics, measured on a scale from 1 to 5, where 1 represents "not interested" and 5 represents "very much interested." Students were divided into 5 groups based on this scale. Group 1=not interested, group 2=slightly interested, group 3=moderately interested, group 4= very interested, group 5= very much interested. It also includes respondents' likelihood of applying for an orthodontic residency in the future using the same scale. The 8-item questionnaire was used to determine the perceptions and motivations regarding orthodontic education of dental students on a scale ranging from 1 (disagree strongly) to 5 (agree strongly) [19].

Overall, the possible scores on the scale range from 8 to 40. The higher the score, the higher the motivation level. There were questions regarding factors influencing student interest in orthodontics. Study participants were asked to rate different factors on a scale from 1 to 5, where 1 indicates they strongly disagree and 5 means they strongly agree. The poll was prepared and finalized before being put on Google Forms. A web link was forwarded to the students through Whats-app class groups. There are almost 50 students in each BDS class, so out of 200 students, 163 responded to that link.

The data was entered and analyzed using SPSS 25. Descriptive statistics such as frequency distributions and percentages were calculated to describe the results. Mean and SD were calculated for the motivation score. A one-way ANOVA test was used to compare the motivation score among groups of dental students with respect to their current interest in an Orthodontic Career. Kendall's tau-b coefficient was used to determine the relationship between various factors influencing students' interest in orthodontics and their current interest in an orthodontic career. A p-value ≤ 0.05 was considered significant.

RESULTS

Table-I: Orthodontic personal and educational experience.

Variables	Categories	Response	n(%)
Personal Experience	Have you ever had orthodontic procedure?	Yes	17(10.4)
		No	146(89.6)
	Had Anyone from your family got Orthodontic Treatment?	Yes	40(24.5)
		No	123(75.5)
	Do you have any Family member in the dental profession?	Yes	36(22.1)
		No	127(77.9)
	If Yes, What is your relationship with that dental professional?	Sibling	4(2.5)
		Spouse	2(1.2)
		Parents	2(1.2)
		Others	28(17.2)
Educational Experience	Do you know any orthodontist in your community?	Yes	107(65.6)
		No	56(34.4)
	Did you work in an orthodontic practice?	Yes	52(31.9)
		No	111(68.1)
	Have you worked under supervision of an orthodontist?	Yes	60(36.8)
		No	103(63.2)

The study included 163 dental students from the Dental Institute at Faisalabad Medical University. Table-I presents data regarding respondents' orthodontic experiences and their interest in pursuing orthodontics as a specialty.

Table-II: Current passion in a career in orthodontics.

Current Interest in an Orthodontic Career	Score	Frequencies (n=163)
How interested are you in becoming an orthodontist?	1	13(8.0)
	2	8(4.9)
	3	62(38)
	4	57(35)
	5	23(14.1)
How likely is it that you will apply for an orthodontic residency in the future?	1	10(6.1)
	2	10(6.1)
	3	66(40.5)
	4	60(36.8)
	5	17(10.4)

Table-II presents data on respondents' current interest in field of orthodontics and their chances for applying in orthodontic residency program. Majority of respondents expressed moderate to high interest in becoming an orthodontist.

Table-III: Dental education regarding orthodontics.

Since You Have Started Your Dental School Education, Did You Have a Rotation in This Location?	Frequencies (n=163) n(%)
Orthodontic department in dental school	89(54.6)
Community-based orthodontic site	6(3.7)
Volunteer orthodontics-related activities	5(3.1)
Not Applicable	63(38.7)
If yes, how interesting was it?	**Frequencies(n=100) n(%)**
Not at all	2(1.2)
Somewhat	58(35.6)
Very much	40(24.5)

Table-III provides insights into respondents' dental education experiences concerning orthodontics. This suggests a varying degree of engagement and enthusiasm among respondents regarding their orthodontic education rotations.

Table-IV presents respondents' perceptions and motivations regarding their orthodontic education experiences.

Table-IV: Perceptions and motivations regarding orthodontic education.

Positive Educational Experiences in Orthodontics	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)
I was satisfied with my orthodontics experience.	12(7.4)	8(4.9)	77(47.2)	54(33.1)	12(7.4)
I felt comfortable working with orthodontics faculty members	13(8.0)	6 (3.7)	55(33.7)	65(39.9)	24(14.7)
I learned a lot from orthodontics residents	13 (8.0)	10 (6.1)	72(44.2)	52(31.9)	16(9.8)
I learned a lot from orthodontics faculty	10 (6.1)	6 (3.7)	60(36.8)	68(41.7)	19(11.7)
I have had a lot of exposure to orthodontics	17(10.4)	32(19.6)	69(42.3)	36(22.1)	9(5.5)
I became more interested in a career in orthodontics.	8(4.9)	18(11.0)	65(39.9)	55(33.7)	17(10.4)
I would like an earlier exposure to Orthodontics.	8(4.9)	11(6.7)	49(30.1)	70(42.9)	24(15.3)
I would like more exposure to orthodontics.	10(6.1)	10(6.2)	42(25.8)	70(42.9)	31(19.0)

Table-V: Comparison of perceptions and motivation score regarding orthodontic education among different group of dental students with respect to their current interest in an orthodontic career.

Current Interest in an Orthodontic Career	Motivation Score Mean ± SD	Minimum	Maximum	P-value
Group 1 (Not interested)	17.1 ± 7.7	8.00	29.00	< 0.001
Group 2 (Slightly interested)	23.8 ± 4.3	19.00	32.00	
Group 3 (Moderately interested)	25.6 ± 3.4	13.00	33.00	
Group 4 (Very interested)	28.9 ± 5.1	8.00	39.00	
Group 5 (Very much interested)	32.8 ± 6.0	16.00	40.00	

In this study, the mean motivation levels for orthodontic education were 27.0 ± 6.20 with a range from 8 to 40. The higher mean motivation score indicates good motivation regarding orthodontic education among dental students. Comparison of motivation between the groups revealed that the students with the highest interest i.e., group 4 and 5 have the highest mean motivation score 28.9 ± 5.1 and 32.8 ± 6.0 respectively compared to the remaining students, and the results are significant (p-value < 0.001) (Table-V).

Table-VI: Factors influencing student interest in orthodontics.

Factors influencing students' interest in orthodontics	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)
Interactions with other dental students	10(6.1)	7(4.3)	39(23.9)	82(50.3)	25(15.3)
Interactions with orthodontists	10(6.1)	7(4.3)	36(22.1)	72(44.2)	38(23.2)
Interactions with orthodontic residents	11(6.7)	9(5.5)	33(20.2)	78(47.9)	32(19.6)
Hands-on experience with orthodontics	9 (5.5)	5(3.1)	38(23.3)	78(47.9)	33(20.2)
Advancements in the field of orthodontics	11(6.7)	5(3.1)	24(14.7)	85(52.1)	38(23.3)

Table-VI describes factors influencing student interest in orthodontics. Majority of participants responded that interactions with other dental students influenced their interest in orthodontics. Similar to interactions with other dental students, interactions with orthodontists most of participants felt influenced. This indicates that direct interactions with professionals in the field have a significant impact on study participants' interest in orthodontics. Moving on to interactions with orthodontic residents, 67.5% of students found this influential. majority of students said that getting hands-on experience with orthodontics mattered to them. This suggests that practical exposure to the field, such as through clinics or internships, plays a key role in developing interest. The highest percentage of respondents expressed agreement or strong agreement regarding the influence of advancements in the field of orthodontics. This indicates that students are excited about the innovative technologies and techniques being developed in orthodontics, which drives their interest in the field.

Table-VII: Relationship between factors influencing students' interest in orthodontics and current interest in an orthodontic career among dental students using kendall's tau-b coefficient.

Factors influencing students' interest in orthodontics	Current interest in an orthodontic career	P-value
	Kendall's tau-b coefficient	
Interactions with other dental students	0.440	≤0.001
Interactions with orthodontists	0.494	≤0.001
Interactions with orthodontic residents	0.485	≤0.001
Hands-on experience with orthodontics	0.462	≤0.001
Advancements in the field of orthodontics	0.464	≤0.001

Table-VII reveals a significant positive relationship between various factors influencing students' interest in orthodontics and their current interest in an orthodontic career. Specifically, interactions with other dental students, orthodontists, and orthodontic residents, as well as hands-on experience with orthodontics and advancements in the field, all show moderate to strong positive correlations (Kendall's tau-b ranging from 0.440 to 0.494) with current interest in an orthodontic career, indicating that these factors are associated with a higher likelihood of students pursuing a career in orthodontics. All correlations are statistically significant ($p < 0.001$).

DISCUSSION

Finding factors that influence dental school students to choose an orthodontic career is crucial, given the predicted rise in the need for orthodontic solutions [21]. The survey results help to clarify the relationships between dental students' interest in orthodontic careers and their varied orthodontic-related experiences before and after their study at dental school.

Only 8 of the 17 students who received orthodontic treatment before entering dentistry school (163 total) were likely to pursue orthodontics as a career. The results showed no connection between orthodontic-related experiences before attending dental school and potential future interest in becoming an orthodontist. Before attending dental school, neither their interest in orthodontic jobs nor their inclination to apply to orthodontic residency programs was predicted by their personal or scholastic orthodontic experiences. This finding conflicts with Noble et al.'s explanation of how early events can affect a person's decision to pursue an orthodontic career [15].

Given the orthodontic instruction provided in dental schools, these findings should caution dental school instructors and administrators when creating orthodontic curricula for undergraduate dentistry students. Undoubtedly, students desired earlier and more extensive exposure to orthodontic course material. This conclusion emphasizes the significance of thinking about how educational interventions could be improved for students by using orthodontic faculty as role models. One such option may be to offer electives in community-based orthodontic education.

Finding out what drives dentistry students to choose orthodontics might help educators create instructional initiatives to advance the field. The outcomes of research on these issues varied. According to a 1994 poll of orthodontic residents, the most frequent reason for changing careers was unhappiness with general dentistry, which was cited by a sizable number of respondents. Lifestyle, financial stability, and having an orthodontist-related relationship were other important factors. According to 2010 research by Noble et al., [15].

Residents decided to become orthodontic professionals before starting their dentistry education. Some key factors influencing their decisions included the sector's cognitive stimulation and adversity, adaptability and regularity of their workloads, earning potential, and the high standards of interpersonal connections between orthodontists and their patients [22]. According to a recent study, intellectual stimulation was the most crucial aspect.

This study had certain limitations. First, in Pakistan, orthodontics is taught as a subject in the final year, so most of the students in the study had no interactions with orthodontic faculty or residents. Since recent dental school graduates were significantly more likely to have had real-world orthodontic interactions with teaching staff members, a poll of them would have been informative. Second, this was a single-center study, so adding more colleges to this research would have been beneficial in eliminating bias.

CONCLUSION

It can be concluded that most students knew nothing about Orthodontics before starting dental school. Nearly half enjoy

working in orthodontics and are more likely to apply to an orthodontic residency program. Many have been exposed to orthodontics during their rotations and need earlier and more exposure to the area. Advances in orthodontics and interaction with orthodontic instructors and assistants are the most important factors that keep students interested in orthodontics.

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REFERENCES:

1. McLain JB, Proffitt WR. Oral health status in the United States: prevalence of malocclusion. Journal of Dental Education. 1985;49(6):386-397.
2. Borzabadi-Farahani A, Borzabadi-Farahani A. Agreement between the index of complexity, outcome, and need and the dental and aesthetic components of the index of orthodontic treatment need. American Journal of Orthodontics and Dentofacial Orthopedics. 2011;140(2):233-238. Doi:10.1016/j.ajodo.2010.09.028
3. Borzabadi-Farahani A. An overview of selected orthodontic treatment need indices. Principles in Contemporary Orthodontics. Croatia: In Tech. 2011:215-236.
4. Ahmed A, Fida M, Javed F, Maaz M, Ali US. Soft tissue lasers: An innovative tool enhancing treatment outcomes in orthodontics—A narrative review. Journal of the Pakistan Medical Association. 2023;73(2):346-351. Doi:10.47391/JPMA.6454
5. Gandedkar NH, Wong MT, Darendeliler MA. Role of virtual reality (VR), augmented reality (AR) and artificial intelligence (AI) in tertiary education and research of orthodontics: An insight. In Seminars in Orthodontics. 2021;27(2):69-77. Doi:10.1053/j.sodo.2021.05.003
6. Mallik AN, Malhotra YA, Badhan AM, Malhotra PU, Rasila DE. Current trends in orthodontics. International Healthcare Research Journal. 2020;4(8):RV1-RV4. Doi:10.26440/IHRJ/0408.11285
7. Rice SM, Graber E, Kourosh AS. A pandemic of dysmorphia :"Zooming" into the perception of our appearance. Facial Plastic Surgery & Aesthetic Medicine. 2020;22(6):401-402. Doi:10.1089/fpsam.2020.0454
8. ADA Health Policy Institute. Economic impact of COVID-19 on dental practices. Week of February 15 results. Available at https://www.ada.org/resources/research/health-policyinstitute/impact-of-covid-19/private-practice-results. Accessed January 30, 2022.
9. Sofola OO, Uti OG, Akpene OI. Does exposure to dental education change the perceptions of Nigerian students to dentistry as a profession?. European Journal of Dental Education. 2008;12(3):159-162. Doi:10.1111/j.1600-0579.2008.00517.x
10. Stewart FM, Drummond JR, Carson L, Hoad Reddick G. A survey of dental school applicants' career intentions and the balance with family life. British Dental Journal. 2005;198(11):713-717. Doi: 10.1038/sj.bdj.4812391
11. Rouhiainen V, Karaharju-Suvanto T, Waltimo-Sirén J. The impact of orthodontic treatment on choosing a career in dentistry. European Journal of Dental Education. 2022;26(1):166-173. Doi:10.1111/eje.12685
12. Worthington CC, Mihas P, Bocklage C, Frazier-Bowers SA, Lin FC, Ko CC, et al. Educational debt and the gender gap: Understanding factors influencing orthodontists' career decisions. American Journal of Orthodontics and Dentofacial Orthopedics. 2022;161(1):e20-e61. Doi:10.1016/j.ajodo.2020.10.027
13. Pruzansky DP, Ellis B, Park JH. Influence of student-loan debt on orthodontic residents and recent graduates. Journal of Clinical Orthodontics: JCO. 2016;50(1):24-32.
14. Dave P, Gute RS, Sonone TP, Gupta A, Kulkarni RB, Kumar V. Motivating factors associated with choosing orthodontics for future prospects among newly passed out dental professionals in Maharashtra, India. Journal of Family Medicine and Primary Care. 2020;9(9):4885-4889. Doi:10.4103/jfmpc.jfmpc_1155_19
15. Noble J, Hechter FJ, Karaiskos N, Wiltshire WA. Motivational factors and future life plans of orthodontic residents in the United States. American Journal of Orthodontics and Dentofacial Orthopedics. 2010;137(5):623-630. Doi;10.1016/j.ajodo.2008.03.034
16. Noble J, Karaiskos N, Wiltshire WA. Motivations and future plans of Canadian orthodontic residents. American Journal of Orthodontics and Dentofacial Orthopedics. 2009;136(5):644-650. Doi:10.1016/j.ajodo.2007.08.037
17. Keith O, Stephens CD, Proffit WR, O'Brien KD. A survey of the opinions of orthodontic specialist trainees in the UK. British Journal of Orthodontics. 1997;24(2):163-167. Doi:10.1093/ortho/24.2.163
18. Naz A, Darvesh SA, Hanif S, Khani MH, Jawad A, Bibi T. Choice of dental specialty and career inclination among dental students in Karachi, Pakistan. Pakistan Journal of Medical & Health Sciences. 2022;16(11):132-132. Doi:10.53350/pjmhs20221611132
19. Wendling N, Kim-Berman H, Inglehart MR. Dental students' interest in orthodontic careers: do orthodontic-related experiences and faculty and practitioner role models matter?. The Angle Orthodontist. 2022;92(6):787-95.
20. Marti KC, Lanzon J, Edwards SP, Inglehart MR. Career and professional satisfaction of oral and maxillofacial surgery residents, academic surgeons, and private practitioners: does gender matter?. Journal of Dental Education. 2017;81(1):75-86. Doi:10.1002/j.0022-0337.2017.81.1.tb06249.x

21. Fortune Business Insights. Orthodontics market. Available at: https://www.fortunebusinessinsights.com/industryreports/orthodontics-market-101587. Accessed January 29,2022.
22. Keith O, Proffit WR. Orthodontic training: the residents' perspective. American Journal of Orthodontics and Dentofacial Orthopedics. 1994;106(6):649-653.

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Fatima Saeed: Statistical analysis and interpretation of data for the work.