

Handedness of orthodontists and its impact on practice

Bahadır Odabas, DDS, PhD,^a Neval Dildes, DDS, PhD,^a Celal Genc, DDS, PhD,^a Ilknur Veli, DDS,^b Torun Ozer, DDS, PhD^b

^aPrivate Practice.

^bDicle University, Faculty of Dentistry, Department of Orthodontics, Diyarbakır.

Received: 15 March 2012 Accepted: 26 March 2012

ABSTRACT

Objectives: To assess the handedness prevalence of orthodontists and analyse the discomfort of left-handed orthodontists on practice.

Materials and Methods: A questionnaire about the laterality of orthodontists and their discomfort was prepared and distributed to our orthodontic society members. 173 questionnaires were investigated.

Results: Fifteen of the participants were left-handed individuals. Of all the 15 samples, only 1 practitioner had been educated with left hand manipulation while studying dentistry. One of the 7 private practitioners preferred left-handed chair for his clinic. Regarding left-handed participants working with right-sided chair, 4 of them thought this situation depresses their treatment quality and 9 of them refused. Most of the left-handed participants complaint about the university education.

Conclusions: Left-handed orthodontists afford to adapt themselves to a right-handed world. They could to be educated on left-handed dental chairs to display a more skillful clinical performance.

Key words: left-handed, orthodontist, handedness.

INTRODUCTION

Laterality is a real problem for left-handed people living in right-handed world. Despite the numerous researches that have done by medical science specialists,¹⁻⁶ there are few studies consisting dentists especially orthodontists.^{7,8}

A successful treatment of any dental problem based on skillful performances of along with the anatomy and location of teeth, selection of a well-adapted instrument, proper angulation of the patient and especially the dentists as well as manual skill.⁹⁻¹¹ Handedness becomes important for practitioner regarding his training position. Unfortunately, almost all dental education and practices in dental schools are designed only for right-handed

students.¹¹⁻¹³ Therefore, left handed students are afforded to study at right sided chairs from the beginning of their educations. As expected, Henderson⁷ have reported that fixed right-sided chairs designed for right handed may generate some discomfort for left-handed dentists. Also Canakci et al.¹³ have reported that left-handed dentists could display evidence of manipulative disadvantage and this might be a result of difficulties with working conditions.

In the literature there are not so much studies considering the handedness of orthodontists, we aimed to present the handedness prevalence of orthodontists and analyse the discomfort of left-handed orthodontists.

MATERIAL AND METHODS

A questionnaire was distributed to 300 participants of our orthodontic society members. The participants including orthodontists and postgraduate students, were coming from different geographic regions of our country. 190 surveys were

Torun OZER
Dicle University,
Faculty of Dentistry,
Department of Orthodontics,
Diyarbakır, Turkey.
e-mail: torunozer@gmail.com

filled and send back to us. Seventeen of the questionnaires were not filled completely so they were eliminated and a total of 173 questionnaires were considered in our research.

The questions were about laterality of orthodontists and their discomfort while they were working on patients. The questionnaire was composed of two parts; Part-1, consisting demographic data and hand preference which was asked to fill in by all participants and Part-2, analysing educational themes, training performance and orthodontists' additional opinions posed only for left-handed orthodontists. The content of the questionnaire could be seen on Table 1.

RESULTS

All questionnaires were analysed by all researchers. After eliminating the missed ones, Part-1 and Part-2 were examined separately.

Demographic data of the left-handed participants are represented in Table-2. Fifteen questionnaires were belonged to left-handed individuals, in a total of 173 individuals. Eleven of the total left-handed people were females and 4 of them were males. 88 participants were female with an average age of 32.33 years (age range: 23-49), 85 participants were male with an average age of 32.31 (age range: 23-60).

Left-handed females and males were practicing orthodontics for an average of 11.5 and 4.75 years respectively. Left-handed participants were practicing orthodontics with an average of 9.7 years.

Among fifteen left handed participants, 7 were private practitioners, where 5 of them were postgraduate students and 3 of them were academic people. Eight of fifteen left-handed practitioners reported that, handedness of the orthodontist is not important if they had gone an orthodontic

therapy. On the other hand 6 of them stated they want to be treated by a left-handed orthodontist and only 1 left-handed participant mentioned he would not be comfortable if he had been treated by a left-handed orthodontist. Most of the right-handed practitioners (165 individuals) thought that handedness is not important if they were treated.

Part-2 included only left-handed individuals' responses. Of all the 15 samples, only 1 practitioner had been educated with left hand manipulation while studying dentistry. He had been taught to study on a left handed chair by left handed educators in periodontology and restorative dentistry clinics. None of them, including that individual, had the opportunity of left-handed education while studying orthodontics.

Considering the chair preference, except one, all of them were working with right-sided chair. It is interesting that only one of the 7 private practitioners preferred left-handed chair for his clinic. Although five of the left-handers reported that they have difficulties on a right sided chair, they did not buy a left sided chair at their private practices.

Examining hand preference of left-handed participants while doing some spatial practices is resulted as following:


- When holding mirror and debonding instrument, 5 of them used their left hand, 5 of them used right and 5 of them used both hands.

- Eleven of them used left hand while bonding brackets, 2 of them used right and 2 of them used both hands.

- While ligating brackets, 5 of them used left hand, 1 of them used right hand and 9 of them used both hands.

- While holding air-water syringe, 3 of them used their left hand, 9 of them used right hand and 3 of them used both hands.

Table 1. Content of questionnaire.

Part 1:									
1. Sex? Male/Female									
2. Age?									
3. Are you a post-graduate student? Y/N									
4. How many years have you been studying orthodontics (including postgraduate education) ?									
5. Are you a private practitioner? Y/N									
6. Which hand do you prefer while treating the patient dominantly? R/L									
7. Which hand do you use while using a mouse of a computer? R/L									
8. Do you mind to be treated by a left-handed orthodontist? Y/N/Does not matter									
9. Are you able to use both of your hands comfortably while writing? Y/N									
Part 2:									
1. Have you ever been educated for left hand manipulation while studying dentistry? Y/N									
2. If your answer is yes, which clinics had left-handed chairs and were you educated about? Please tell what kind of education did you get?									
3. Did you get any left-handed manipulation in your post-graduate education (chairside and studying)? Y/N									
4. If your answer is yes, did you get this education from a left-handed orthodontist? Y/N									
5. If your answer is no, do you use a right-sided chair now? Y/N									
6. If you use right-sided chair, do you have any difficulties while studying? Please grade it.									
1	2	3	4	5	6	7	8	9	10
I do not have any difficulties			I have little difficulties				I have a lot of difficulties		
7. If you use right-sided chair, which hand do you prefer in following cases?									
Holding mirror R/L									
Holding handpiece R/L									
Bonding brackets R/L									
Taking impressions R/L									
Ligating R/L									
Using air-water syringe R/L									
Debonding R/L									
8. Can you use your right hand comfortably if you do not need additional care? Y/N									
9. If you are working in university clinic, what kind of unit would you like to buy for your private practice? R/L									
10. Which foot do you prefer to manage foot controller while using handpiece? R/L									
11. Which position do you prefer to sit while working with your patient?									
								9	3
									
12. Do you use instrument tray to put your working materials on? Y/N									
13. If you are having your private practice, do you have a chair which is fabricated for left-handed people? Y/N									
14. If you are working with a right-sided chair, do you think this depresses your treatment quality? Y/N									
15. Does any of your patients complain, if you are working with a left-sided chair? Y/N									
16. Write the situations you think to be better if you were able to use your left hand.									
17. Write your additional opinions about our survey.									

All participants stated that they could use their right hand comfortably if they did not need any additional care. Four of them wanted to buy right-sided, 6 of them wanted to buy left-sided chair and 5 of them could not decide, if they have the chance to have a new chair for their

clinics. While using handpiece, 2 of them preferred their right foot, 8 of them preferred their left foot and 5 of them used both feet to manage footcontroller. Considering working position according to the chair, 6 of them sit at the right side of chair (9 position), 5 of them sit behind the chair

Table 2. Demographic data of left-handed participants.

	Female	Male	Total
Number	11	4	15
Mean age	35.09	28.5	33.33
Age range	26-49	26-34	26-49
Year range on practice	3.5-23	3-8	3-23
Mean years on practice	11.5	4.75	9.7

head (12 position), and 4 of them including the participant who had left-sided chair described different positions. Interestingly, there was no one working only at the left side (3 positions) of the chair. Twelve left-handed practitioners used instrument tray to put on working materials, 3 left-handed practitioners did not use.

Regarding left-handed participants working with right-sided chair, 4 of them thought this situation depresses their treatment quality, 9 of them refused and 2 of them had no answer. No one had any patient complaint regarding the working position.

In the additional opinion part, most of the left-handed participants complaint about the university education. They thought it would be better if they had the chance to be taught according to their handedness during their dentistry and postgraduate education programs. Some of them wrote the reduced clinical performance according to the physical factors like back or lower back pain and working in a standing position. Some noted that the chairs would be more functional if the spittoon block is movable.

Suprisingly, some of right-handed participants reported that they wanted to use their left hand in some conditions.

DISCUSSION

The purpose of our study was to present the handedness prevalence of orthodontists and analyse the discomfort of left-handed orthodontists.

Many researchers¹³⁻¹⁶ used the Edinburg Handedness Inventory to assess handedness in their surveys. However Ransil and Schachter¹⁷ had reported that the handedness scores derived from Edinburg Inventory correlates with self reports of the participants. So in the present study handedness was observed from the answers of the participants.

A consensus has not yet been reached in the prevalence of left-handedness. Researches vary from 2% to 30%.^{5,7,15,18} Most estimates are around 10%.¹⁹ Henderson et al.⁷ prepared a questionnaire for dental students and orthodontists in UK to investigate the prevalence and role of handedness in dental specialization. The prevalence of left-handedness was 8.6 % among dental students and 17.2 % among orthodontists. Bagramian and McNamara¹⁸ reported that left handedness prevalence was 11% among orthodontists. Elalmış and Tan¹⁴ presented the hand preference in Turkish population, and left handed prevalence was 7.6%. In our survey, 8.7% of all participants were left-handed which was in accordance with other studies.

Brayer et al,²⁰ reported that skill may be defined as proficiency that comes from training and practice. Unfortunately in many dental schools there is no chair designed for left-handed students. This may inversely affect dental practice. In our study nobody described about a systematic education period for left-handed people. Only one left-handed participant reported that he had been taught at a left-handed chair with a left-handed person in periodontology and restorative dentistry clinics. Graham²¹ and Henderson et al,¹² reported all dental educations and practices in dental schools are designed only for right-handed students. Whitmore²² stated that the oral surgery department made all the students extract teeth with their right hand. These difficulties could establish problems for left-handed practitioners.

There was a great tendency for using left hand while performing procedures that require additional care like bracket placement and using high speed handpiece. Also left handed practitioners reported reduced clinical performance according to the physical factors like back or lower back pain and some stated an obligation of working in a standing position. In consideration of these complaints, one may expect that all of the left-handed practitioners would buy a left-handed chair in their private practices. But interestingly, only one of seven private practitioners preferred left-handed dental unit in his clinic. This could be associated with the lack of education of left-handedness.

Right handed practitioners generally prefer to treat their patients from the right side of the patient in some instances like bonding brackets. Only 13.3% (2 of 15) of the left handed participants treat patients from the left side of the chair; however this proportion would be greater if they had been taught on a left-handed chair.

Aimonetti²³ mentioned about the adaptation of left-handed people to a right-handed world necessitated by the selection of the right hand to perform various maneuvers. But in a previous study

Makay et al. stated that 33% of the participants had difficulties while performing endoscopic surgery procedures.⁴ In the present study, 37% of left-handed respondents had difficulties while working with a right-sided chair, which is a substantial proportion not to be ignored. As right sided dental chairs have spittoon block and reflector light attachment on the left side; manufacturers could construct dental units for left-handed people. At least right sided dental units could be more portable in a manner that spittoon block and reflector light attachment mounted to the right side of the dental unit easily.

CONCLUSION

Left-handed orthodontists afford to adapt themselves to a right-handed world. They spend time and come up against many disadvantages such as physical discomfort. If they have the chance to educate on their handedness and use left-sided chair, they would display a more skillful clinical performance.

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