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Scissors Bite: A Retrospective Study of 1000 Libyan Patients

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Abstract

The aim of this study was to assess the prevalence of scissors bite among Libyan population, which is one of the most challenging malocclusion to correct. A random sample of 1000 Libyan adults, aged 18-30 years was selected randomly from Libyan adult patients of whom were; 265 males (26.5%) and 735 females (73.5%). Out of this sample, 29 subjects (2.7%) had scissors bite; 25 subjects had buccoversion scissors bite representing 2.4% of the study sample, were 22 unilateral and 3 bilateral cases scissors bite was found in subjects aged <18 years old followed by subjects aged 19-24 years old and no cases were found in >25 years old. The outcome of our study does not necessitate any special considerations for scissors bite cases since the quality and number found lies in the normal range of other studies.

Introduction

Scissors bite is a rare form of malocclusion that is often accompanied by varying degrees of facial asymmetry and transverse discrepancies in adults. It is a condition where the lower posterior teeth, i.e., molars, are positioned more inward compared to the position of their maxillary counterparts. Scissors bite could arise from different reasons, e.g., congenitally narrow lower arch or broader upper arch, which leads to the upper posterior teeth completely encompassing the lower ones. When present, they are very difficult to treat especially in cases that also exhibit vertical overlapping of posterior teeth [1]. The aim of our present study is to determine the current status of malocclusion cases in Libya in terms of suffering from this difficult aspect of orthodontic problems.

Subjects & Methods

A random sample of Libyan adult patients, aged 18-30 years (average 24 years) was selected randomly from patients who had orthodontic treatment at the department of Orthodontics/Faculty of Dentistry in Benghazi city, between 2008-2015 years. The study was conducted on 1000 randomly selected individuals according to their availability from different aspects of malocclusion on the population sample (265 males and 735 females).

All subjects recruited gave their verbal consent to participate in the study. All the selected subjects in the sample were Libyans in whom: all permanent teeth in both jaws were totally erupted (excluding the 3rd molars); no history of extraction or congenitally missing teeth; no serious disease or anomalies in the craniofacial region; no previous trauma or operation in the craniofacial region that could affect occlusion, and no history of orthodontic treatment.

Evaluation of Scissors Bite

Posterior scissors bite was evaluated assessing transversal relationship of the upper and lower premolars and molars. The normal transverse relationship was considered when the tips of the buccal cusps of the lower teeth occluded with the central fossae of the opposing upper premolars and molars. Scissors bite was considered when the tip of the palatal cusp of one or more upper molar or premolar occluded in the central fossae or buccal of the lower molar or premolar. All the statistical tests were done using Microsoft Excel 2013 (Microsoft Cor.)

Results

Demographic data

The present study was conducted on 1000 randomly selected individuals in accordance to their availability within the age range of (18-30); 265 males (26.5%) and 735 females (73.5%).

Distribution of scissors bite

Out of the sample 29 subjects (2.7%) had scissors bite; 25 subjects (2.4%) had buccoversion scissors bite (Table 1).

Scissors bite distribution according to sex

There was no statistically significant difference between prevalence of scissors bite in males and females.

Buccoversion scissors bite, there was no statistically significant difference between males and females (Table 2, Table 3, Figure 1, Figure 2).

Buccoversion scissors bite, there was a statistically significant difference between different age categories. The highest prevalence of unilateral buccoversion scissors bite was found in subjects aged <18 years old followed by subjects aged 19 – 24 years old and no cases were found >25 years old (Table 4) (Figure 3).

Discussion

The present study was performed to assess the prevalence of

Table 1: Distribution of buccoversion scissors bite.

Buccoversion scissors bite	n	%
Unilateral	22	88
Bilateral	3	12
Total	25	100

Table 2: Frequencies (n), percentages (%) and results of Chi-square test for comparison between prevalence of scissors bite in males and females.

Scissors bite	Males		Females		P-value
	n	%	n	%	
Scissors bite	6	2.1	23	3	0.471
No scissors bite	259	97.9	712	97	
Total	265	100	735	100	

*Significant at $P \leq 0.05$

Table 3: Frequencies (n), percentages (%) and results of Fisher's exact test for comparison between buccoversion scissors bite in males and females.

Buccoversion scissors bite	Males		Females		P-value
	n	%	n	%	
Unilateral	5	100	17	85	1.000
Bilateral	0	0	3	15	
Total	5	100	20	100	

*Significant at $P \leq 0.05$

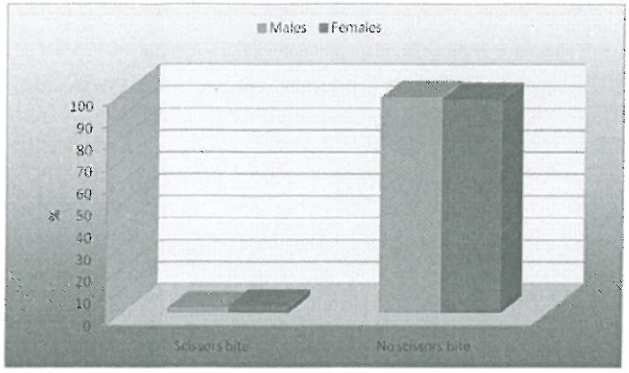

Figure 1: Bar chart representing sex distribution of scissors bite in males and females.

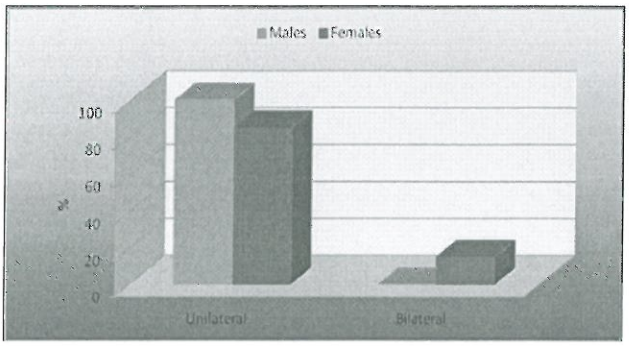

Figure 2: Bar chart representing buccoversion scissors bite in males and females.

Table 4: Frequencies (n), percentages (%) and results of Chi-square test for comparison between buccoversion scissors bite in different age categories.

Buccoversion scissors bite	<18 years		19 – 24 years		>25 years		P-value
	n	%	N	%	n	%	
Unilateral	1	100	21	91.3	0	0	0.021*
Bilateral	0	0	2	8.7	1	100	
Total	1	100	23	100	1	100	

*Significant at $P \leq 0.05$

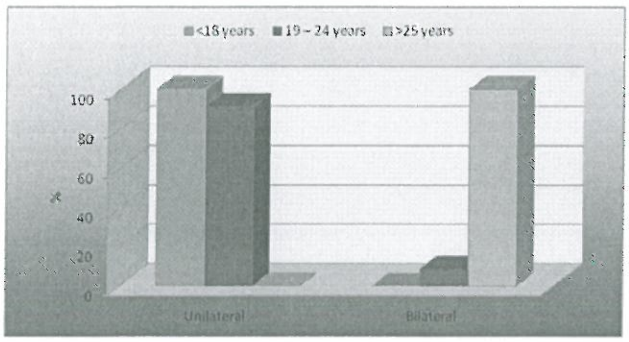

Figure 3: Bar chart representing buccoversion scissors bite in different age categories.

malocclusion in a sample of Libyan patients. Scissors bite has been recently associated with the preference of patients to chew on the non-affected side leading to imbalanced muscular activity and movement [2]. Scissors bite is a form of crossbite that applies to total maxillary buccal (or mandibular lingual) side in such a way that the mandibular teeth are completely contained in the maxillary dentition in habitual occlusion [3]. Another form of scissors bite, known as Brodie bite, results from transverse skeletal deficiency and was found in 1.0-1.5% of the population [4]. There is a variety of treatment modalities of different devices available in the literature as case reports but that is beyond the aim of our paper.

The results of our study were similar to many studies conducted to seek the percentage of scissors bite malocclusion: 3.2% were found in the study of Al-Emran et al. [5]; 3% were found by Ingervall et al. [6]; 2% by Farahani [7]; and 1.5% by Josefsson, et al. [8].

However, our results seem to differ from those of Jonsson et al. [9] who found that the occurrence of scissors bite was significantly higher in males than females. In their work, they found that the percentages of subjects with unilateral or bilateral scissors bite were (2.7%) for males and (0.4%) for females.

In the literature, several studies have reported less parentages of scissors bite prevalence, e.g., 0.6% by Onyeaso CO et al. [10]; 0.3% by Alhaija et al. [11]; 0.3% by Gelgör et al. [12].

There are studies whose results exceed ours significantly, confirming the variability in the occurrence of this type of malocclusion. For instance, Soh et Sandham have reported 13% of their sample to have scissors bite [13], while Mtaya et al. have found their whole sample to have 14.3% scissors [14].

To conclude, the prevalence of scissors bite in the Libyan population is considered to be among the normal range compared with other populations, and the resultant figure does not raise any urgent need for more screening programs or treatment provision than currently available.

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