Frequency of Anterior and Posterior Open Bites in Patients Presenting to Armed Forces Institute of Dentistry (AFID), Rawalpindi, PAKISTAN

Hameedullah Jan[a], Amin Bushra [b], Amir Khan[c]

Abstract

Aim: Open bite is the most difficult malocclusion to treat. Complete knowhow of its frequency is required for an efficient treatment delivery to a community. The main goal of this study was to calculate the frequency of an anterior and posterior open bite in a local setting.

Materials and Methods: Out of a total sample of 1856 patients reporting to Armed Forces institute of dentistry from 2001through 2008, 1800 patients fulfilled the inclusion criteria. Dental records including photographs and casts were observed for the presence of anterior and posterior open bite. The frequency of open bite from the total sample and its percentage with respect to gender and age was calculated.

Results: The frequency of open bite was found to be 5.5%, 73.73% had anterior open bite and 26.26% had posterior open bite. The mean age of patients was 21.6 years. Females were twice as frequently affected as males. Unilateral posterior open bite and Simple anterior open bite were more prevalent.

Conclusion: There is no question that this is one of the most difficult malocclusions to manage and maintain in orthodontics. Its treatment should be primarily etiology oriented and according to our individual requirements so as to prevent the chances of relapse (IJO 2006;1:172-5).

Key words: Anterior open bite, Posterior open bite, frequency, AFID, Pakistan.

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Malocclusion is a developmental disorder of the craniofacial complex that affects jaw, tongue and facial muscles, and is the result of an interaction of genetic and environmental factors.

Such disorders can appear in primary dentition, where anterior open bite and posterior cross bite are the most prevalent conditions.[1]

[a]Associate Professor, Department of Orthodontics, Faculty of Dentistry, Armed forces Institute of Dentistry (AFID), Rawalpindi, Pakistan.

[b]Resident Department of Orthodontics, Faculty of Dentistry, Armed forces Institute of Dentistry, Rawalpindi, Pakistan.

Resident Department of Orthodontics, Faculty of Dentistry, Armed forces Institute of Dentistry, Rawalpindi, Pakistan

Corresponding author:

Dr.Hameedullah Jan, Program Director Department of Orthodontics,Faculty of Dentistry,Armed Forces Institute of Dentistry(AFID) Rawalpindi,Pakistan.

Email: huj100@hotmail.com.

Open bite must be considered as a deviation in the vertical relationship of maxillary and mandibular arches, characterized by lack of contact between opposing segments of teeth.[2] Open bite can be classified as dental or skeletal and anterior or posterior, which is either unilateral or bilateral. Anterior open bite can be further categorized as being simple or complex.[3] Based on severity, vertical separation of 0-2 mm is moderate, 3-4mm is severe and more than 4mm is considered extreme.[4]

An anterior open bite is a lack of contact in a vertical direction between the incisal edges of the maxillary and mandibular anterior teeth. Numerous theories of open-bite etiology have been proposed, including unfavorable growth patterns, heredity, digital habits, and tongue function.[5]

Etiology of open bite is multi factorial, including unfavorable growth patterns, congenital (macroglossia) or acquired including tongue thrust, abnormal tongue posture, sucking habits (thumb sucking).[6]

Simple anterior open bites are characterized by vertical separation of anterior teeth, extending up to premolars, whereas in complex anterior open bite, the vertical separation extends right up to the molars.

Parameters of skeletal open bite are; steep mandibular plane angle, increased lower face height and obtuse gonial angle. Features of dental open bite are divergent maxillary and mandibular planes, mesial inclination of posterior teeth and lack of normal curve of Spee in the lower arch.[7]

The prevalence of anterior open bite ranges from 1.5% to 11% and varies between ethnic groups and by age and dentition. The major clinical challenge that clinicians often encounter when treating anterior open bite is how to address patients' concerns about function and facial aesthetics.[8]

Open bite seems to be governed by racial factors more than the dental skeletal features. This is evident by the variable prevalence in people from different racial and ethnic groups. Kelly[9] reported a prevalence of 3.5% in white population in contrast to 16.5% in black population. Proffit et al. [10] reported a prevalence of 3.5% in patients from 1-17 years of age. A prevalence of 10.2% exists in a Nigerian sample[11] and 2% in Argentinean sample.[12]

Since the prevalence in different populations is drastically different, it becomes imperative to calculate the frequency in our subset of Pakistani population.

MATERIALS AND METHODS

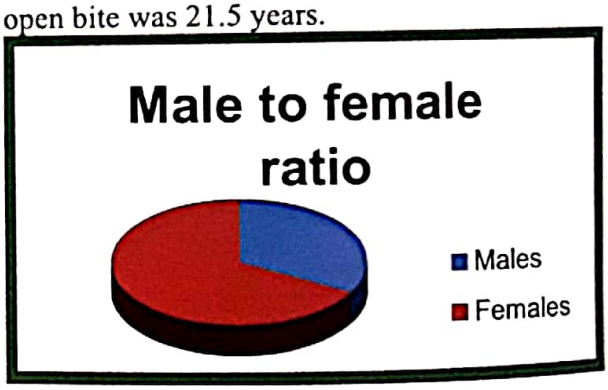
This study was conducted on patients presenting to the department of orthodontics, AFID, to determine the frequency of open bite in our subset of population. A total of 1856 consecutive patients presenting to AFID between June 2001 and January 2008 were included in the study. All orthodontic patients in their permanent dentition with adequate dental records were included in the study. Patients with craniofacial syndromes were excluded from the study. 56 patients were excluded from the study because they did not fulfill the inclusion criteria. Dental records of the remaining 1800 patients were screened for the presence of anterior and posterior open bites. The location of the open bite, anterior or posterior and the types, whether simple or complex was also observed. Photographs and dental casts of patients were reviewed by a single operator.

Gender distribution and mean age of the patients presenting with anterior or posterior open bite was calculated.

RESULTS

Out of a total sample of 1800 patients 99(n), 5.5% had open bite malocclusion.

The mean age of the patients presenting with open bite was 21.5 years.



The male to female ratio in our results was 1:2. 33.33% patients were males and 66.6% were females.

73.73% of open bite patients had anterior open bite out of which 19.19% had complex anterior open bite and 80.82% and

Table1: Frequency of Anterior and posterior open bite

Anterior Open Bite		Posterior Open Bite		
73.73%		26.26%		
Simple	Complex	unilateral		Bilateral
		42.30%		
80.82%	19.19%	Rt	Lt	57.69%
		26.9%	73.07%	

26.26% of the patients had posterior open bite. Out of these posterior open bite patients 57.69% had bilateral whereas 42.30% had a unilateral problem. In 7(n), 26.9% patients had an open bite on the right side and 19(n), 73.07% had it on the left.

DISCUSSION

Our study revealed a prevalence of 5.5% in our subset of Pakistani population. The individual prevalence of AOB was 4%. This was closest to the Ugandan sample where the prevalence was 1-4%. [13] The frequency of AOB was 3.5% in the white population.

There is a lack of cumulative prevalence of open bites in literature, most studies focus on the individual prevalence of anterior open bite (AOB).

In our study, AOB specially the simple kind was far more prevalent than posterior open bite (POB). The male to female ratio in our study was 1:2. This is close to the Belgian ratio of 2:3.1.[4]

Our study also sheds some light on the individual frequency of posterior unilateral and bilateral open bite.

Though there was an insignificant difference between bilateral and unilateral open bite. Amongst the unilateral posterior open bite cases, it was observed more frequently on the left than on the right.

We did not focus on the etiological basis of open bite, nor did we observe whether the bite was skeletal or dental in origin.

CONCLUSION

Open bite malocclusion not only cripples the patient esthetically, but functionally as well. It is notorious to manage and even more so to retain. It's prevalence in our society is an indication toward the fact that further larger scale studies are required to ascertain the prevalence in our population.

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