

# INCIDENCE OF ANTERIOR OPEN BITE AMONG PATIENTS REPORTING TO LAHORE MEDICAL & DENTAL COLLEGE, LAHORE

Dr. Rehan Qamar BDS, FCPS (Orthodontics), Head/Associate Professor, Lahore Medical & Dental College, Lahore.

## Abstract

**Introduction:** The purpose of this study was to calculate the incidence/frequency of an anterior open bite and its gender distribution among the patients reporting to department of Orthodontics, Lahore medical and dental college, Lahore.

**Material and Method:** Dental records of 456 patients reporting to LM&DC were assessed for the presence of anterior open bite. The frequency and gender distribution was calculated among the total selected sample.

**Results:** The mean age of the patients was 20.5 years. The frequency of open bite was found to be 2.6%. Male to female ratio was 1:2. Simple anterior open bite was more prevalent.

**Conclusion:** females are more affected by open bite malocclusion than the males. Simple type of open bite is more prevalent as compared to complex type.

**Key words:** anterior open bite, malocclusion, incidence of open bite

**Correspondence:** 421 / 2 / C-I, Township, Lahore. Cell: 0313-9787879 Email: rehanqamar@live.com

## INTRODUCTION

An anterior open bite is a lack of contact in a vertical direction between the incisal edges of the maxillary and mandibular anterior teeth.<sup>1</sup> It is one of the most prevalent malocclusion that may develop in the primary or mixed dentition age as a consequence of an interaction of both genetic and environmental factors.<sup>2,3</sup> Several theories have been proposed to express the etiology of open-bite, including unfavorable growth patterns, heredity, digital sucking habits, and abnormal tongue function.<sup>4</sup> Mouth breathing, muscular dystrophy, narrow maxillary arch and pathologies of palatine tonsils have also been reported among the causes of anterior open bite.<sup>5</sup>

Open bite is classified as dental or skeletal, anterior or posterior and might be unilateral or bilateral. It may present as simple or complex. Skeletal open bite is characterized by small anterior cranial base, steep cranial base angle, increased mandibular plane angle and lower face height, short posterior face height. On

clinical examination, skeletal open bite is manifested by an outsized interlabial gap.<sup>6</sup> Dental open bite occurs due to deficient dentoalveolar vertical heights.

Additional features include divergent maxillary and mandibular planes, mesial inclined posterior teeth and lack of normal curve of spee in the lower arch.<sup>7</sup> Simple anterior open bite is characterized by lack of contact of anterior teeth, extending up to premolars, whereas in complex anterior open bite, the vertical separation extends up to the molars.<sup>8</sup> On the bases of severity the anterior open bite is rated moderate (vertical separation of 0-2 mm), severe (3-4 mm vertical separation) and extreme (more than 4 mm vertical separation)<sup>9</sup>.

Open bite is one of the difficult malocclusions to be treated. Various methods of treatment included the use of bite blocks,<sup>10</sup> cervical headgear,<sup>11</sup> fixed appliance with vertical elastics<sup>12,13</sup> modified face mask and multiloop edgewise archwires.<sup>14</sup> At present

the use of implants has gained remarkable reputation as an absolute anchorage unit for open bite corrections by active intrusion of maxillary posterior teeth.<sup>15,16</sup> The prevalence of anterior open bite ranges from 1.5% to 11% and varies between ethnic groups and by age and dentition.<sup>17</sup> In view of the fact that the prevalence in different populations is significantly different, the current study was done in our region to calculate the frequency of open bite.

## Materials and Methods

The present study was carried out on the dental record of 456 selected adult patients seeking treatment in the dept of orthodontics, Lahore Medical & Dental College between 2003 to April 2009 to determine the incidence of anterior open bite, whether simple or complex. Patients with craniofacial disorders were excluded from the study.

The mean age and gender distribution and percentage of simple and complex type of open bite among the selected patients exhibiting anterior open bite was calculated.

## Results

The mean age of the patients was 20.5 years.

Out of total sample of 490, 13 (2.6%) patients had open bite malocclusion (Table No.1). Out of 13, 5 (38%) were males while 8 (61%) were females (Table No.2). 88.87% had simple open bite and 11.13% had complex anterior open bite (Table No.3). The male to female ratio was found out to be 1:2.

**Table No. I**  
%age of open bite patients among the total sample size

Total sample	Open bite patients	% age
456	13	2.6

**TABLE No. II**  
Incidence of open bite (Gender Distribution)

N=456

Male	Female
5	8
38%	61%

**TABLE No. III**  
% of simple & complex open bite

N=456

Simple	Complex
11.13%	88.87%

## Discussion

The current study revealed that simple open bite was more prevalent than complex type of anterior open

bite. The male to female ratio in our study was 1:2. This was contrary to the findings of certain investigators, where no gender differences were noted.<sup>18,19</sup>

Prevalence of open bite in the present study was found out to be 2.6%. This was closest to the prevalence of open bite in Argentinean<sup>20</sup> (2 %) and Uganda<sup>21</sup> where the study sample revealed the percentage range of 1-4%. The second closest prevalence percentage was found in Hawaii island<sup>22</sup> population (3.1%). Behbehani found 3.5% in Kuwaitis.<sup>23</sup> Bukhay<sup>6</sup> carried out a similar study in Saudi Arabian adolescents. The open bite incidence in his study was found out to be 6.6%. Among the Nigerian school children the open bite prevalence was reported 7.3%.<sup>24</sup> Ngana<sup>25</sup> reported 8% in Kenya. Thus making the residents of Kenya most affected by anterior open bite.

Furthermore, open bite showed variable prevalence in people from different racial and ethnic groups. National Health and Examination Survey (NHANES III) data for all ages showed that 6.6 % of blacks had an open bite comparing with 2.9% for whites had 2.1% for Mexican-Americans<sup>26</sup>. In another study, Profit and his coworkers reported a prevalence of 3.5% in patients from 1-17 years of age in a national survey of malocclusions in the united states<sup>27</sup>. The above facts thus indicate that open bite is governed more by racial factors rather than dento-skeletal features.

## Conclusion

1. Open bite malocclusion is far more prevalent among females than males. 2. Simple open bite is more prevalent in comparison to the complex type of open bite. 3. Although less prevalent, yet there is a sign to carry out large scale studies to wards the fact that further larger scale studies are required to establish the prevalence in our population. Better understanding of the malocclusion would help in more appropriate management of the malocclusion.

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