



## Prevalence of Anterior Open Bite in Kanpur Orthodontic Population: An Original Research Study

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### KEYWORDS

Prevalence,  
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### ABSTRACT:

**Aim:** To determine the prevalence of anterior open bite in Kanpur Orthodontic population.  
**Materials & Methods:** A retrospective cross sectional study was designed in which records (dental casts, lateral cephalogram & photographs) of consecutive 1262 patients who visited the department of Orthodontics, Rama Dental College, were evaluated. Anterior open bite cases were further divided into mild, moderate and severe cases depending on their severity. The anterior open bite was 0-2mm in mild cases, 2-4mm in moderate cases & more than 4mm in severe cases.  
**Results:** Out of a total of 1262 patients 32 AOB cases were found leading to a prevalence of 2.53%. Out of 32 cases, 12 (37.5%) patients were male and 20 (62.5%) were female, leading to a female to male ratio to be 1.66:1. A total of 18 cases (6 males, 12 females) were mild, 8 cases (3 males, 5 females) were moderate and 5 cases were found to be severe (2 males, 3 females).  
**Conclusion:** 1. The prevalence of anterior open bite in Kanpur Orthodontic population was found to be 2.53%. 2. The prevalence was found to be more in females. Female to male ratio was found to be 1.66:1.3. The percentage of mild cases was found to be 56.25%, moderate cases were 28.1% & severe cases were 15.62%.

### Introduction

Anterior Open Bite was defined by Moyers as lack of contact between opposite teeth.<sup>1</sup> These malocclusions pose a challenge to the Orthodontists as they are difficult to treat and prone to relapse. Open bite malocclusions may be skeletal or dental in nature however most of the cases present with both skeletal & dental characteristics.<sup>2,3</sup> Globally, the prevalence of anterior open bite ranges between 1.6% & 47.1%. In primary dentition the prevalence has been found to be 3%-41%<sup>4</sup>, in mixed dentition 1%-15%<sup>4</sup> & in permanent dentition 2-5%<sup>5-7</sup>. Prevalence has been found more in blacks than in whites. Various factors have been implicated in the etiology of open bite. Heredity plays an important role in occurrences of open bite.<sup>8</sup> Anatomical factors include enlarged adenoids, deviated nasal septum, swollen nasal turbinates.<sup>9</sup>

Environmental factors include finger sucking, tongue thrusting as well as forward tongue posturing.<sup>10,11,12</sup> The purpose of the present article was to determine the prevalence of anterior open bite in Kanpur Orthodontic population.

### Materials & Methods

Ethical approval was obtained from the Institutional Ethical committee (RDCHRC/ETHICS COMMITTEE/2022-23/053). A retrospective cross sectional study was designed in which records (dental casts, lateral Cephalogram & photographs) of consecutive 1282 patients who visited the department of Orthodontics Dentofacial Orthopedics, Rama Dental College, were evaluated. The criteria for inclusion for the study were patients belonging to the age group 10- 40 years with



anterior open bite and good quality pretreatment records. Exclusion criteria included patients with history of trauma, craniofacial syndrome or any systemic or metabolic disease. Anterior open bite cases were further

divided into mild, moderate and severe cases depending on their severity. The anterior open bite was 0-2mm in mild cases, 2-4mm in moderate cases & more than 4mm in severe cases.

## Results

**Table 1:** Distribution of anterior open bite w.r.t gender

	Male	Female	Total
Number of Patients	530	732	1262
Patients With Open Bite	12 (37.5%)	20 (67.5%)	32 (100%)

**Table 2:** Distribution of Anterior Open Bite w.r.t severity

	Male	Female	Total
Mild	6	12	18 (56.25%)
Moderate	4	5	9 (28.1%)
Severe	2	3	5 (15.62%)
Total	12	20	32 (100%)

Out of a total of 1262 patients 32 AOB cases were found leading to a prevalence of 2.53%. Out of 32 cases, 12 (37.5%) patients were male and 20 (67.5%) were female, leading to a female to male ratio to be 1.66:1. Anterior open bite cases were further divided into mild, moderate and severe cases depending on their severity. The anterior open bite was 0-2 mm in mild cases, 2-4 mm in moderate cases & more than 4 mm in severe cases. A total of 18 cases (6 males, 12 females) were mild, 8 cases (3 males, 5 females) were moderate and 5 cases were found to be severe (2 males, 3 females).

## Discussion

A retrospective cross sectional study was carried out to determine the prevalence of anterior open bite among the patients visiting the Orthodontic department of Rama Dental College, Kanpur. Among 1262 patients 32 cases of anterior open bite were found leading to a prevalence of 2.53%. This result is in accordance with the findings of various other studies. Ize-imayu&isiekwe<sup>13</sup> in their study found the prevalence of anterior open bite to be 2-5 % children of Benin City, Nigeria. Akshaya et al<sup>14</sup> in their study found the prevalence to be 2.5%. Jain & Sandeep<sup>15</sup> in their study on south Indian population found the prevalence to be 0.5%. Zena Hekmat Al -Tae<sup>16</sup> in their study found the prevalence to be 4%. However, there were few studies where the prevalence was found to be much

higher than our study. Urzal et al<sup>17</sup> found that the prevalence of anterior open bite was found to be 16.9%. Cozza et al<sup>18</sup> found the prevalence to be 17.7%. Avrella et al<sup>19</sup> found the prevalence to be 16.52%. In our study the prevalence was found to be more in females than in males. Female to male ratio was found to be 1.66:1. This is in accordance with several other studies. Ahmed et al<sup>20</sup> in their study found the male female ratio to be 1:3 in their study on Pakistani population. Zena Hekmat Al -Tae<sup>16</sup> found the prevalence to be higher in females than in males. Avrella et al<sup>19</sup> also found the prevalence to be higher females than in males. In contrast, few studies showed higher prevalence of males than females. Jain & Sandip<sup>15</sup> in their study on south Indian population, found the prevalence to be higher in males than in females. The anterior open bite cases were divided into mild, moderate & severe cases depending on their severity. In our study percentage of mild cases was found to be 56.25%, moderate cases were 28.1% & mild cases were 15.62%. In a similar study Jain & Sandip<sup>15</sup> found that mild cases (97.1%) were more prevalent than severe cases (2.9%) in a south Indian population.

## Conclusion

Following conclusions were drawn from the present study:

1. The prevalence of anterior open bite in Kanpur Orthodontic population was found to be 2.53%.



2. The prevalence was found to be more in females than in males. Female to male ratio was found to be 1.66:1.
3. In our study percentage of mild cases was found to be 56.25%, moderate cases were 28.1% & severe cases were 15.62%.

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