

# Prevalence of Lower and Upper Canines Mal Occlusion among Dental Colleges Students

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## ABSTRACT

**Background:** Canine impaction is known to be one of the most common abnormalities in the teeth. The aim of this study was to evaluate the prevalence of mal occlusion canines and canine teeth, among Iraqi dental students in Baghdad. **Methods:** This study included 260 students (161 (61.9%), female and 99 participants (38.07%) male) between the ages of 18 and 24, faculty of dentistry at IBN Sina University of Medical and Pharmaceutical Sciences, Iraq, Baghdad from February 2021 to June 2022. The tooth was considered affected when it was not aligned with the rest of the teeth in any of the tooth braces. Data on age, sex, the number, position, localization (right/left) of teeth, number of affected teeth, arch in question and tooth name were obtained the clinical of patients.

**Results:** The results of the cases showed a total (11) of impacted mandibular canine teeth were found, with prevalence (4.2%) of impaction. The results of the cases showed a total (6) of impacted maxillary canine teeth were found, with prevalence (2.3%) of impaction. The total of (17) cases malocclusion in the sample with prevalence (6.5%).

**Conclusions:** Early detection of impacted teeth is critical to successful treatment and thus demographic studies are important. Although larger samples are needed, this study provides a basis as to the frequency and type of canines affected in this particular group.

**Key words:** Impacted, Malocclusion, Upper canine, Lower canine

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## INTRODUCTION

Dental anomalies containing alterations in number, size and teeth structure often outline a major challenge for dental practitioners [1]. The affected tooth is defined as the tooth retained after the average time of its eruption [2]. It maintained that when tooth is unexploded after more than one year of natural age of eruption, is defined as "impacted" [3]. Tooth impaction is defined as "a condition in which a tooth is prevented from erupting via a physical barrier in a track of eruption" [4]. Next to third molar, upper jaw canine is the second most affected tooth in tooth arch [5,6]. Most affected teeth by impaction were reported as, third molars, maxillary canines, maxillary central incisors and premolars. These variable measures may have occurred using various age groups, sample sizes and patient variety [7-10]. The spread of affected teeth varies in proportion to the population, then be situated to range from (6.9%-76.6%) [11-15]. It's a recurring phenomenon has been extensively reported in the

literature [16-19]. Though, there are differences in spread of affected teeth in diverse parts of the world and their scattering in the upper in addition to lower jaws [20-22]. It was also informed that prevalence of affected teeth was more recurrent in females than in males. Furthermore, different factors attendant with dental curvature that includes different oldness groups, timing of the emergence of teeth, race or areas of study members and radial evaluation standards [23]. Impaction of maxillary canine can raise risk of root extrusion of neighboring lateral incisors, gum infections and cystic follicular lesions [24]. Canine impaction recognized to be one of the most common abnormalities in the teeth [25]. After the third molars were affected, permanent maxillary canines were furthestmost affected one [26]. Incidence of maxillary canine impaction was (20 times) higher than that of lower canine impaction [27]. The canines were impacted with the man to thousands years. A case reported in engraved skull old (2700-2724) BC, so it looks likely that an anomalous eruption of man teeth are not caused by modified environments created by recent civilization [28]. Permanent canines the foundation and the column of the aesthetic and well-designed smile occlusion. Standing in corner of the teeth arch shaping the protrusion of canine for support from base of the alar and the upper lip. Functionally; It maintenances teeth that contribute to

their separation, in side movements in some individuals, root length and especially their size, making them one of the most prominent stents for replacing prosthetics of other maxillary teeth. Impacted teeth, especially canines represent many complications for an orthodontist can harm dental movement, aesthetics and functional consequences [29]. The upper jaw canine trails a more difficult, twisted path of eruption than any other teeth. At age of three, it is high in upper jaw, with its crown guided in a mesial and somewhat linguistic manner; it travels towards proactive level, steadily correcting itself till it appears to hit far side of the root of lateral incisor. It then appears deviate to more vertical position. However, it often breaks out in the oral cavity with a noticeable mesial tendency [30].

This study directed to conclude prevalence maxillary and mandibular canines, mal occlusions amongst dental undergraduates.

### MATERIALS AND METHODS

This study included 260 students ((161) females and (99) male participants) between the ages of 18 and 24, faculty of dentistry at IBN Sina University of Medical and Pharmaceutical Sciences, Iraq, Baghdad (From February 2021-June 2022).

The tooth was considered affected when it was not aligned with the rest of the teeth in any of the tooth braces. Data on age, sex, site, number of affected teeth, arch in question and tooth name were obtained. A special case patient paper for recording information was design,

examination carried out on a dental chair with a good source of light, dental checkup by researcher, wear disposable surgical gloves, face protective measures and using a disposable mirror. After collecting data, it was arranged in tables and then statistical analysis was performed to reach final results. The prevalence of affected canines in relation to age, gender and site was assessed by frequency and percentage.

### RESULTS

Total case examined 260 undergraduates students in the college of dentistry, IBN Sina university of medical and pharmaceutical sciences in Baghdad, Iraq, (age 18-25 year), in mean age (21.5 years), the study started from January 2020 and end into May 2022 from them be 161 (61.9%), females and 99 participants (38.07%) males (Table 1). The results of the cases showed a total (11) of impacted mandibular canine teeth were found, with prevalence (4.2%) of impaction. The results of the cases showed a total (6) of impacted maxillary canine teeth were found, with prevalence (2.3%) of impaction. The total of (17) cases malocclusion in the sample with prevalence (6.5%). Lower impacted canine (3) cases in male with prevalence (1.15)%, while in female be (8) cases with (3.07)% prevalence. The total upper mal occlusion canine results were (6) cases (2.3)%, same in the two genders, (3) cases with (1.15)% prevalence in both of them (Table 2).

**Table 1: The distribution of canine impaction according to location and gender.**

Gender	No. of students	Upper impacted Canine	Lower impacted Canine	Total impaction in each gender	Bi sided Lower impacted canine	Bi sided Upper impacted canine	Total Bi sided impaction
Male	99	3 (1.15)%	3 (1.15)%	6 (2.3)%	1 (0.38)%	3 (1.15)%	4 (1.5)%
Female	161	3 (1.15)%	8(3.07)%	11 (4.2)%	5 (1.9)%	1 (0.38)%	6 (2.3)%
Total	260	6 (2.3)%	11 (4.2)%	17 (6.5)%	6 (2.3)%	4 (1.5)%	10 (3.5)%

**Table 2: Prevalence gender ration for impacted maxillary canine and mandibular canine.**

Canine impaction	Total cases	prevalence	Males	Females	Bilaterally	Mean age	Age range years
Upper and lower canine impaction	17/ 260	(6.5)%	6 (2.3)%	11 (4.2)%	6 (2.30)%	21.5	18-25
Maxillary canine	6/260	(2.3)%	3 (1.15)%	3 (1.15)%	3 (1.15)%	21.5	18-25
Mandibular canine	11/260	(4.2)%	3 (1.15)%	8 (3.07)%	2 (0.76)%	21.5	18-25

10 students have bi sided mal occlusion, 4 of them were male, while the females are 6 cases from the 17 cases, 7

students with uniside malocclusion, 2 from the cases were male, 5 students were females (Table 3).

**Table 3: The distribution of number and genders of patients associated with canine impaction.**

Gender	Number of impacted canine of impaction		Total no (%)
	Uni side impaction no (%)	Bi sided impaction no (%)	
Male	2 (0.76%)	4 (1.5%)	6 (2.3%)
Female	5 (1.9%)	6 (2.3%)	11 (4.2%)
Total	7 (2.6%)	10 (3.8%)	17 (6.5%)

## DISCUSSION

In the study by Raja A Mustafa and Amal H Abuaffan, the proportion of impacted permanent canine was institute to be 2% [31]. Large figures of studies have shown the prevalence of permanently affected canine in various populations. Permanent canine among different populations, in upper jaw stated between them 0.8% and 5.4% [32-37]. While a smaller percentage has been reported in the lower jaw 0.3% and 0.44%. The results among Swedish and Sudanese population were similar (2.05%) [38]. Yet, it was less than the score between Saudi population (3.6%) and Turkish (3.73%) [39]. Prevalence of maxillary impaction between Sudanese was (1.6%) same (1.7%) in Swedish and Colombian children. A higher prevalence (3.29%) reported in Turkish patients and (5.4%) in Hungarian. Less one (0.8%) reported in Chinese patients [40]. The Sudanese mandibular canine impaction study (0.33%), a Swedish result, was relatively similar (0.35%). While he had a higher rate (0.44%) among Turkish patients. The difference among maxillary and mandibular impaction can be recognized to fact that the maxillary canines are the last teeth to grow and move a long path before the dental arch erupts, aggregate the potential for mechanical disorders leading to displacement besides impaction [41].

Higher prevalence of impaction can be accredited to the younger age collection of patients as well as to the ethnic differences between them. In the Sudanese study, most students (73.5%) had a solo effect, 24.5% had two canines and the lowest was (22.9%) informed in the Saudi population. On other hand, the Swedish noted only (8%) of the effects of bilateral canines. The male to female ratio in affected canines was 1:4 in the Sudanese study, in the Hungarian the ratio was 46:55, while in Turkish 1:1.51. Beck stated that the difference between the sexes credited to biological phenomena with genetic links, involving sex chromosomes. Abdulaziz Alamri, showed in his study that there were no significant variances in incidence of impacted teeth between male and female study members, which is in agreement with the results of other studies [42-48].

Exploration of radiographs revealed that prevalence of impacted teeth was (13.2%) in Saudi patients, close to other studies, for example 13.7% among the Greek population, 14.1% studied in the finland population and 16.8% in the northern part of India of the participants were diagnosed with impacted teeth, 44.1% in central part of Iran, 28.3% in China, In Hong Kong and Turkey, 3.58% of patients detected with canine impaction next 4,500 consecutive panoramic review.

Ahmed and Dhiaa the prevalence of misplaced canines is 11%, however, misplaced canines in the lower arch were higher (12%) than in the upper arch (10%) and the

distribution of misplaced canines was higher in males (11.3) compared to females (10.7) [49]. Iraqi studies show high prevalence in the lower arch compared to the upper arch for both sexes [50-53]. On the other hand Al-Huwaizi, et al. who found that impacted canines were more prevalent in the upper arch than in the lower arch [54]. Ahmed and Dhiaa, Aldabagh, et al. and Aldabagh found that canine malposition was higher in males than females [54,55].

In our study the prevalence of malposed canine is (6.5%) less than the results in previous similar Iraqi studies, but close to that in Saudi and Turkish one, the high prevalence of lower canine impaction (5%) than the upper one (1.5%) supported the Iraqi studies done in the past.

The prevalence in our study in female students is higher than male with no significant differences, This not agree with Iraqi studies but close to the ratio results in other countries.

There is need for large group students study includes many colleges of dentistry in many Universities, a survey like that carried in India and Arabia Saudi and other countries will be of a great help to fix the end view of the truth.

## CONCLUSION

Early detection of impacted teeth is critical to successful treatment and thus demographic studies are important. Although larger samples are needed, this study provides a basis as to the frequency and type of canines affected in this particular group.

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