



## Original Research Article

## Prevalence of dental malocclusion in stomatology hospital, Kabul-Afghanistan

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## ABSTRACT

**Objective:** The objective of this study was to determine the incidence of different types of malocclusion among 1000 OPD patients in Stomatology Hospital, Kabul, Afghanistan.**Materials and Methods:** 1000 patients between ages of 15-30 years (500 males and 500 females), randomly selected using specific criteria among patients that visited Kabul Stomatology Hospital OPD department, for 7 months. Patients were examined directly intra-orally, and information was collected by a single observer, recorded on pre-prepared forms, and analyzed through the SPSS program.**Result:** Result of this study showed that from 1000 OPD patients, 81.2% were suffering from malocclusions, among which Class I Malocclusion was recorded to be 49%, Class II Division 1 was 14.8%, Class II Division 2 was 8.2%, Pseudo Class III was 3.1%, and Class III Malocclusion was recorded to be 6%. Class I Malocclusion was the most prevalent.© 2020 Published by Innovative Publication. This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by/4.0/>)

## 1. Introduction

Dental malocclusions are considered to be one of the most prevalent dental problems even in developed countries.<sup>1-3</sup> Various attempts to treat these conditions have been recorded in history, and now it has become a specialized field in Dentistry. For this reason, people from all over the world have an awareness of this issue even in countries like Afghanistan where war and poverty have been threatening people for many decades, people like to give importance to their appearance regarding teeth. Though the number of such people in the population is still minimal, access to the internet and social blocks are increasing these numbers day by day. Unfortunately, due to lack of facilities, unavailability of training and crucial attention to dental emergencies, Afghanistan has no evidence-based studies, records, or any scientific data which can show the incidence of malocclusions in this country. For this reason, as a pioneering step, this study was carried out in the one and

only independent, Dentistry College affiliated; Government based Stomatology Hospital in the country, which is located in Kabul, Afghanistan. This Hospital has the privilege of not only to train 100s of dentists every year but also this is the last resort for all referral cases from around the country. This study is of utmost importance for the future of orthodontics in our country. We hope that this study can raise awareness and open ways for further studies and collections of data. In the study, we recorded the malocclusion based on these classes, which are as follows:

1. Class I
2. Class II (Distocclusion)
3. Class II Division 1
4. Class II Division 2
5. Class III and Pseudo Class III

## 2. Methods and Materials

This is a descriptive study, including 1000 cases from OPD patients of Kabul Stomatology Hospital. The method of sampling was random. 1000 OPD patients were randomly

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selected during 7 months. The information gathered in this study is collected by a clinical checkup and directly intra-orally examination of patients on the dental unit, in ample light and with a dental checkup kit in the form of primary study and were recorded in a pre-prepared questionnaire. The intra-oral examination included: number of teeth, teeth restoration, molar relation, canine relation, over jet, over bite, maxillary mid-line diastema, spacing, crowding and arch form. The collected information from the questionnaires was added to the coding page and entered to the SPSS software for further analysis.

### 2.1. Inclusion criteria

1. Patients who did not receive any orthodontics treatment before.
2. Patients with crowns, especially first molars, without excessive restorations.
3. Patients whose first molars were not extracted.
4. Patients between the ages of 15-30 years.
5. Patient who had a complete set of teeth excluding third molars.
6. Patient without any periodontal diseases.

### 2.2. Exclusion criteria

1. Patients above 30 years of age or under 15 years of age.
2. Patients who have had received orthodontics treatment before.
3. Patients with excessive restorations, especially on molars.
4. Patients with too many teeth extracted.
5. Patients with extracted or otherwise missing molar teeth.

## 3. Results

In this study, that took place among 1000 OPD patient of Kabul Stomatology hospital between the range of 15-30 years old from 5/3/2019 to 15/10/2019 on determining frequency and patterns of malocclusion, types of malocclusion were recorded in the following summative manner in tables and figures.

In Table 1 and figure 1, types of malocclusion with their percentage are described. In this study it was found that 1.5 % of the sample population had ideal occlusion. It means they fulfilled all the aspects of ideal occlusion and all 6 points of Andrews's ideal occlusion were met which described in Table 2.<sup>4,5</sup> 17.3 % of the sample population had normal occlusion. The most common type of malocclusion present was Class I with 49% prevalence. The least common malocclusion present was Pseudo Class III with a 3.1 % percentage. Malocclusion Class, II type 1 was found two folds more than Class II type 2.

About the relation of gender with malocclusion as it is mentioned in figure 2. In males the most common type of malocclusion was Class I with 23.22 %, and it was found among females with 25.83%. The vast difference was seen in malocclusion Class II type 1, where females presented with 10.31% and males with 4.5%. Moreover, ideal occlusion was found four times more in females than males. Malocclusion Class III was found to be twice in males than females.

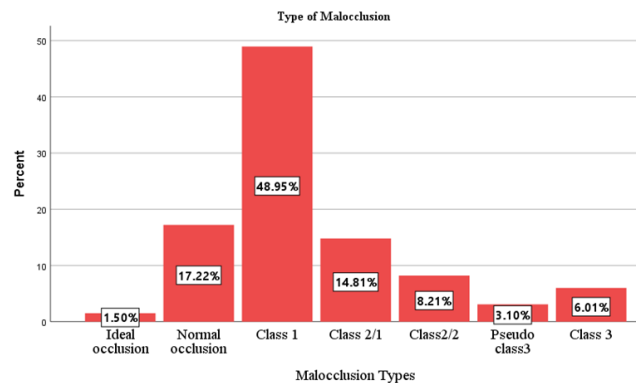


Fig. 1: Incidence of Malocclusion

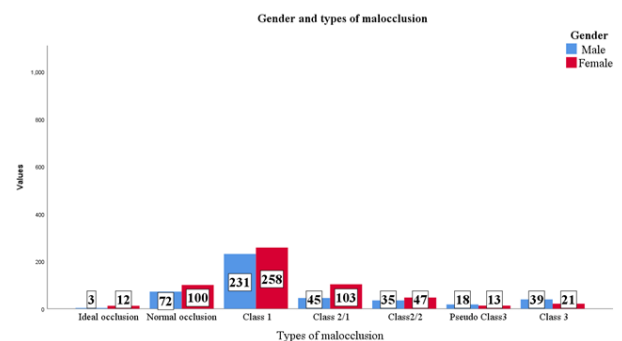


Fig. 2: Gender and type of Malocclusion

## 4. Discussion

From the above study, it is concluded that incidence of malocclusions are found to be about 81.1% which is quite high. The most common type of malocclusion was Class I with 49%, the less common was Class III with 6% and the least common was Pseudo Class III malocclusion with 3.1%. The findings from this study are similar to that of other countries with the similar type of studies. In the studies carried out in the United States of America, 2/3 of the population is suffering from malocclusion, where the most common type of malocclusion is Class I with 50-55% and the least common among them is Class III with about 1% occurrence.<sup>1,3,6,7</sup>

**Table 1:** Percentage of malocclusion types

No	Type of Occlusion	Number of incidence	Percentage%
1	Ideal occlusion	15	1.5
2	Normal occlusion	173	17.3
3	Class I Malocclusion	490	49.0
4	Class II/1 Malocclusion	148	14.8
5	Class II/2 Malocclusion	82	8.2
6	Class III Pseudo malocclusion	31	3.1
7	Malocclusion Class III	60	6.0
8	Total	1000	100%

**Table 2:** Difference between ideal and normal occlusion

Ideal occlusion	Normal occlusion
<ul style="list-style-type: none"> <li>• A coincident mid-line</li> <li>• No (crowding/spacing/rotations)</li> <li>• Correct crown angulation and inclination</li> <li>• Class I molar &amp; canine relationship</li> <li>• A flat or slightly upward curve of Spee</li> </ul>	<ul style="list-style-type: none"> <li>-Is one which shows: Some deviation from that of the ideal but is aesthetically stable for the individual</li> <li>-The upper and lower teeth fit nicely and evenly together with the least amount of destructive interference</li> </ul>

These numbers prove that these results are similar to that of our country and back up our study. In the study among the Eastern population, it is found that malocclusion Class III can be seen widely. Among the population of Japanese 3-5% and in Chinese 2%, Class 3 and 3% Pseudo-Class III malocclusion are recorded, which are also similar to our results.<sup>8-10</sup> In the studies done on Arab children of 13-15years old, it was found that 85% had Class I malocclusion, 8.5% Class II type1, 1.7% Class II type 2 and 1.3% Class III. Hereditary, racial and environmental factors affect the result, on the other hand sample size and method of sampling can also affect the results.<sup>11</sup> In the studies performed in the city of Rio-de-Janeiro Brazil, the occurrence of malocclusion was also found to be 75.8% that is also similar to our findings.<sup>6</sup> In the studies performed in Shiraz Iran incidence of malocclusion Class I 47.4%, Class II type1 14.7% and Class III 2.1% are found which have similarities to our finding.<sup>9,12</sup>

Moreover, in the studies as mentioned above occurrence of Class II type1 in males was five times that of females which is similar to our findings.<sup>12</sup> Another study that took place in Nishapur Iran in 2003-2004 normal occlusion was recorded to be 13.7%, Class I 45%, Class II type 2 16.4%, and Class III 9.2%, which are similar to our findings.<sup>13,14</sup>

In the study by Helm in the year 1968 in Denmark, over 1700 teenagers between the age of 9-18 were recorded. According to their results, malocclusion Class II was noted to be 24%, and Angle's Class III was recorded to be 4% which are near to our results.<sup>15</sup>

In another study that took place in Jaipur India in Mahatma Gandhi hospital in 2013, the results obtained were: 66.6% of the tested population had similar types of malocclusion, maximum of which was Angle's malocclusion Class I and minimum of which was 1.4% was Class III malocclusion.<sup>16</sup>

The results obtained in this study vary from that of ours. Factors like hereditary, race, environment, methodology and sample collection have effects on these results. In another similar study from Delhi India by Sindhu, the occurrence of malocclusion is found to be higher than ours; there's being 90%.<sup>17</sup>

A study done by Dr. Rawanmher and colleagues, in 1998 on over 500 students between the ages of 12-14 in Tehran Iran, similar results like our study are recorded which are shown in the table below. However, in this research, the results obtained on malocclusion Class III are shown to be twice that of ours. In the below table it can be noted that normal occlusion was recorded to be 16% compared to 17.3% in this study which is quite similar. Malocclusion Class I by the difference of 1% is also very similar.<sup>13,14</sup>

## 5. Conclusion

From 1000 OPD patients in Kabul Stomatology hospital, only 18.8% had normal and ideal occlusion, while 81.2% were suffering from one or other types of malocclusion which shows the high occurrence of malocclusion in the sample population. Among all the malocclusions the highest percentage was of Class I with a 49% rate and the lowest recorded malocclusion was Class III true and Pseudo types with 6% and 3.1% respectively. Malocclusion Class II type 2 was recorded twice in females compared to males.

## 6. Limitations

This Descriptive study provides an overall estimate of numbers of incidence of malocclusions in Afghanistan. For more accurate and detailed results further studies using sensitive methods and a wide range of sample collection is required. Constraints and limitations to this study were as follows:

1. The biggest limitation to this study was the unavailability of previous studies in Afghanistan on Malocclusions. Since no other records were present so there was no means of comparison of results for accuracy.
2. Patients in Afghanistan especially women are not very comfortable in answering correctly in filling the questionnaires. Human errors might have occurred in the collection of correct information.
3. No files and records of the patients with detailed orthodontic problems were available in the hospital.
4. Due to budget limitations X-rays and bite casts were not obtained.
5. We believe that the number of cases recorded for this study is not enough to represent the whole country. For precise numbers further studies are required with cases from other parts of the country.

## 7. Source of Funding

None.

## 8. Conflict of Interest

None.

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