



## Prevalence and Treatment of Skeletal Class III at the Dento-Facial Orthopedic Service at Blida Chu-Algeria

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### Abstract

**Objective of the Study:** Skeletal class III is an orthopedic abnormality characterizing by maxillary development in children. The main objective of our study is to assess the number of children affected by skeletal class III and to identify the risk factors.

**Materials and Methods:** Our study population consisted of 382 young patients in 2015/2016, this population represents the total number of child consultants in 2015/2016 in the dentofacial orthopedics department.

We also selected a population of 1,365 young patients in 2017/2018.

#### Results:

1) The prevalence of the presence of skeletal class III between 2015/2016 is 8.37%.

2) The prevalence of the presence of skeletal class III between 2017/2018 is 5.56%.

**Discussion:** The prevalence of skeletal class III in our clinic between 2015/2016 was 8.37%, while in 2017 it was 5.56% despite the fact that the population retained in 2017 was larger. This inconsistency is most likely related to the extent of the field taken in 2017, which results in a reduced percentage of unhealthy cases. Among other things, the prevalence of skeletal class III experienced a quantifiable decrease between 2015 and 2017.

**Keywords:** *Skeletal Class III; Young Subjects; Early Treatment*

### Introduction

Skeletal class III is an anomaly frequently encountered by orthodontists. This anomaly exhibits a multiform syndrome [1] of which three heterogeneous varieties are registered according to the site and the nature of the skeletal abnormalities: arrest of maxillary development, mandibular prognathism or a combination of the two [2].

Skeletal class III is the instigator of a functional deficit and aesthetic damage with significant social and psychological repercussions in young patients. To do this, the practitioner is forced to promote a holistic functional and orthopedic treatment, in order to restore an archetypal facial and functional balance.

In the event of these entangled points, and the considerable rate of children affected by skeletal class III at our dental clinic, we piloted a controlled epidemiological study on the prevalence of skeletal class III in children.

This is a retrospective, cross-sectional descriptive study, analyzing the prevalence of skeletal class III in children, over a two-year period from 2015 to 2017.

#### Place of study

This epidemiological study took place at the Ahmed Zabana dental clinic, wilaya of Blida.

**Interest:**

- To assess the importance of the problem of skeletal class III dysmorphia.
- Identify the risk factors.
- Formulate hypotheses and verify them.
- Evaluate progress.

**Objectives of the Study**

**Primary objectives**

- Assessment of the number of children affected by skeletal class III.
- Assessment of the prevalence of skeletal class III in children according to age, gender and region.

**Secondary objectives**

- Prevention of the installation of skeletal classes III.
- Recommendations and instructions.

**Materials and Methods**

The data was collected from consultation registers, which contain all the necessary clinical information concerning patients consulting with specialists.

We selected a population of 382 young patients in 2015/2016, this population represents the total number of child consultants in 2015/2016 in the dentofacial orthopedic service, we calculated the number of patients with skeletal class III which is 32.

We also retained a population of 1365 young patients in 2017 and we calculated the number of patients with skeletal class III which is 76.

**Results**

**The prevalence of skeletal class III by year 2015/2016**

$P = (\text{Number of patients affected} / \text{Total number of consulting patients}) * 100$

$P = (32/382) * 100$

P = 8.37%.

**2017**

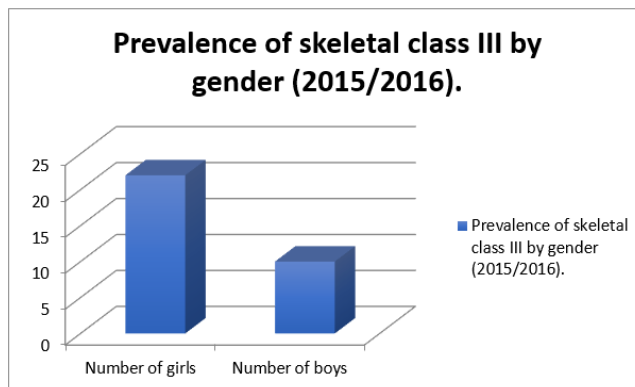
$P = (\text{Number of patients affected} / \text{Total number of consulting patients}) * 100$

$P = (76/1365) * 100$

P = 5.56%.

**The prevalence of skeletal class III according to gender 2015/2016**

Gender	Number of children affected by skeletal class III
Number of girls	22
Number of boys	10



**Table 1:** Prevalence of skeletal class III by gender (2015/2016).

The total number of young patients with skeletal class III is 32.

$P = (\text{Number of girls} / \text{Total number of patients}) * 100 = (22/32) * 100 = 69\%$

$P = (\text{Number of boys} / \text{Total number of patients}) * 100 = (10/32) * 100 = 31\%$

**2017**

Gender	Number of children affected by skeletal class III
Number of girls	35
Number of boys	41

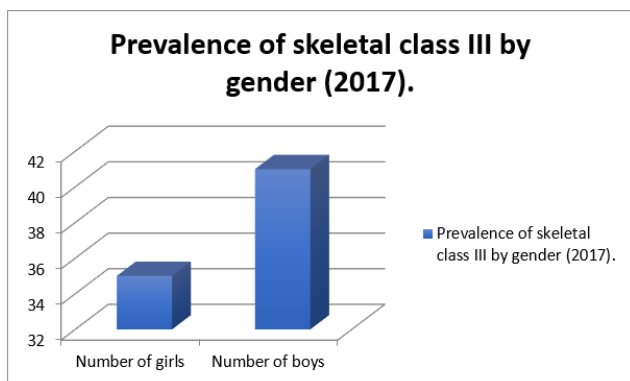


Table 2: Prevalence of skeletal class III by gender (2017).

The total number of young patients with skeletal class III is 76.

$$P = (\text{Number of girls} / \text{Total number of patients}) * 100 = (35/76) * 100 = 46\%$$

$$P = (\text{Number of boys} / \text{Total number of patients}) * 100 = (41/76) * 100 = 54\%$$

The prevalence of skeletal class III according to age  
End of 2015/2016

Age	Number of young patients with skeletal class III
4 - 8 years	6
8 - 12 years	23
12 - 16 years	2
Age unknown	1

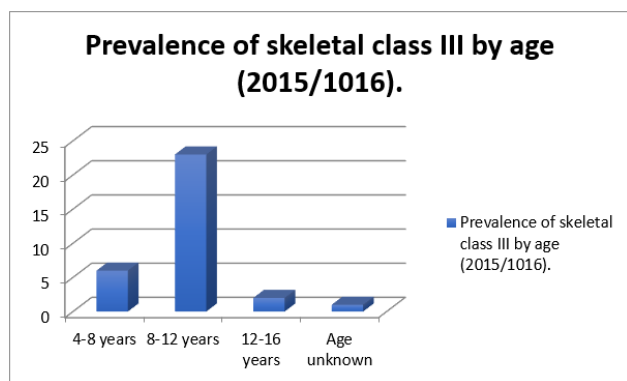


Table 3: Prevalence of skeletal class III by age (2015/1016).

The total number of young patients with skeletal class III is 32.

The percentage of children affected by skeletal class III aged 4 to 8 years is:  $P = (6/32) * 100 = 19\%$ .

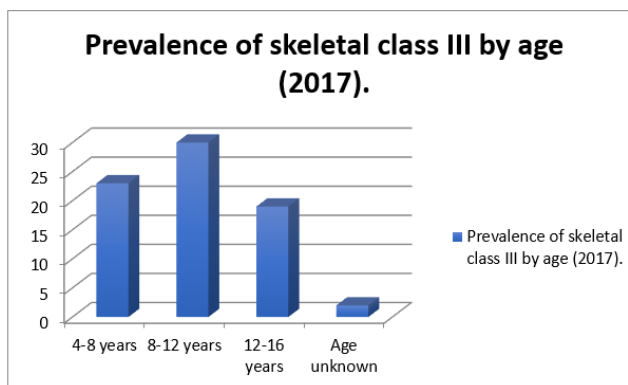
The percentage of children affected by skeletal class III aged 8 to 12 years is:  $P = (23/32) * 100 = 71\%$ .

The percentage of children affected by skeletal class III aged 12 to 16 is:  $P = (2/32) * 100 = 6\%$ .

2017

Age	Number of young patients with skeletal class III
4 - 8 years	23
8 - 12 years	30
12 - 16 years	19
Age unknown	2

Table 4: Prevalence of skeletal class III by age (2017).



The total number of young patients with skeletal class III is 76.

The percentage of children affected by skeletal class III aged 4 to 8 years is:  $P = (23/76) * 100 = 30\%$ .

The percentage of children affected by skeletal class III aged 8 to 12 years is:  $P = (30/76) * 100 = 39\%$ .

The percentage of children affected by skeletal class III aged 12 to 16 is:  $P = (19/76) * 100 = 25\%$ .

### The prevalence of skeletal class III according to the region 2015/2016

The number of young patients with skeletal class III inhabitants in Blida is 15.

The total number of young patients with skeletal class III is 32.

$P = (\text{Number of patients living in Blida} / \text{Total number}) * 100 = (15/32) * 100 = 47\%$ .

### 2017

The number of young patients with skeletal class III inhabitants in Blida is 45.

The total number of young patients with skeletal class III is 76.

$P = (\text{Number of patients living in Blida} / \text{Total number}) * 100 = (45/76) * 100 = 59\%$ .

### Discussion and Conclusion Depending on the year

The prevalence of skeletal class III in our clinic in 2015/2016 was 8.37%, while in 2017 it was 5.56% despite the fact that the population retained in 2017 was larger. This inconsistency is most likely related to the extent of the field taken in 2017, which results in a reduced percentage of unhealthy cases. Among other things, the prevalence of skeletal class III experienced a quantifiable decrease between 2015 and 2017.

According to several authors, the prevalence of skeletal class III the lowest (4%) was marked in the European-American populations and the highest (15 - 23%) in the populations of East Asia [3]. Our results obtained fall within the field delimited by these two values, and this confirms all the theoretical data.

### According to the gender

In 2015/2016, we noticed that most of the children affected by skeletal class III are girls with a percentage of 69% while that of boys is 31%. In 2017, the percentage of boys affected increased to 54% and that of girls dropped to 46%. The outcomes obtained cannot be significant, but we can entangle the nature of the population retained which may be more feminine in 2015/2016 and more masculine in 2017.

Indeed, the prevalence of skeletal class III varies according to sex, but without specifically affecting one gender more than the other [4]. Our study clearly affirms this announcement.

### By age

In 2015/2016, the percentage of children with skeletal class III aged 4 to 8 years is 19% while the percentage of those aged 8 to 12 is 71%. In 2017, the percentage of children aged 4 to 8 is 30% and for those aged 8 to 12 is 39%. We find that the most dominant age group is 8 to 12 years old, this is closely linked to higher consultations in period of mixed dentition than in period of temporary dentition. Mixed dentition consultations reflect the exaggerated clinical signs of skeletal class III which lead parents to take their child for specialist consultation.

In fact, no stable data on the prevalence of skeletal class III by age are found in the literature.

### Depending on the region

The percentage of young patients with class III skeletal consultants at the Ahmed Zabana dental clinic in 2015/2016 and inhabitants of Blida is 47%, while in 2017 this percentage is 59%. This clearly embodies the dominance of children in care living in Blida and the non-consultation of children living outside the wilaya of Blida, namely Djelfa, Médéa, Tipaza, Ain Defla.

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