



## Mamelon Prevalence: Unveiling the Impact of Age, Gender, and Dietary Patterns

### **First Author**

Dr. Vidya M A MDS

Assistant professor, Department of Oral Pathology, Dayananda Sagar College of Dental Sciences, Bangalore.

Phone number-9945421369

Email [Address-vidyaannegowda5@gmail.com](mailto:Address-vidyaannegowda5@gmail.com)

### **Second Author**

Dr. Krishnanand P S MDS

Professor and Head, Department of Oral Pathology, Dayananda Sagar College of Dental Sciences, Bangalore,

Phone Number -9886266776

Email Address-kpsetlur@gmail.com

### **Third Author**

Dr. Simran Naik

BDS, Department of Oral Pathology, Dayananda Sagar College of Dental Sciences, Bangalore, India

Phone Number-8310188528

Email [Address-simrannaik247@gmail.com](mailto:Address-simrannaik247@gmail.com)

### **Fourth Author**

Name: Madhumitha Shanmugan

Email: Madhumithashanmugan@gmail.com

Phone: 7259688926

College: Dayananda Sagar College of Dental Sciences

**Corresponding Author-Dr Vidya M A  
Vidyaannegowda5@gmail.com**

### **Abstract:**

Mamelons are three small eminences, each developed on the incisal edges of the newly erupted incisors from one of the three facial developmental lobes.

Mamelons are only enamel extensions, with no dentin underneath. This feature and their thinness make them translucent and more noticeable.

This study aims to determine the prevalence and identify the presence of mamelons and to correlate it with age, gender, and dietary pattern among dental students in Bangalore.

**Methods:**

The study group comprised 150 dental students (124 females, 26 males) aged between 17-28 years. Study participants were selected randomly by systemic random sampling. The students were examined on a dental chair using the chair light, mouth mirror, probe, and latex gloves. And for evidence, photographs were taken using canon 1500D, and the data collected was presented for statistical analysis. Statistical analysis of the data was performed using the chi-square test.

**Results:** 30.7% of the study participants (n=46) showed the presence of mamelons which consisted of 32.3% females (n=40) and 23.1% males (n=6), out of which 33.3% vegetarians (n=13) and 29.7% nonvegetarians (n=33) had the presence of mamelons. On an intergroup comparison based on age, it was observed that the prevalence of mamelons was 35.2% (n=31) in the age group of 17-20 years, 25.5% (n=14) in the age group of 21-24 years and 14.3% (n=1) in the age group of 25-28 years

**Conclusion:**

The frequency of prevalence of mamelons was more in females aged 17-20 years who followed a non-vegetarian diet.

**INTRODUCTION:**

Violence and acts of crime are widely prevalent in today's society. Modern-day criminal investigations have reached their peak where the involvement of many

different disciplines is a must to solve the crime. With the ever-increasing crime rate in our society, the field of forensic sciences has become highly evolved.<sup>1</sup>

Forensic sciences assist the investigating team in the identification of the victim, cause of death, time of death, nature of the injury, and the weapons used by the criminal.<sup>2</sup>

Teeth is the most hard and robust part of the human body which can withstand extreme weather conditions without degrading acting as an adjunct in forensic odontology.

Forensic odontology demonstrates a central role by presenting the pieces of evidence from the oral and maxillofacial region (including the teeth), which will be used in a jurisdictional setting and acknowledged by the court of law and the general scientific community to affirmatively and rightly distinguish between the truth from untruth.<sup>3</sup>

According to the Federation Dentaire Internationale, forensic odontology is defined as the branch of dentistry which, in the interest of justice, deals with the proper handling and examination of dental evidence, proper evaluation, and presentation of dental findings.<sup>2</sup>

As an account of the varied developmental pattern of the hard tissue the teeth get their varied morphology. One such anatomical structure best seen on the incisal edge of a newly erupted incisors is mamelon.

Mamelons are present on the maxillary central incisor, they are morphologically different from each other, middle one is smallest and distal has a low shoulder, most mesial one has a raised shoulder.<sup>4</sup>

Mamelons according to previous studies shows distinctive unique pattern from person to person. Also serving as a key role in forensic dentistry in assessing bite marks in a much more constructive manner. Therefore, this observational study aimed to

determine the prevalence and identify the presence of mamelons while simultaneously correlating the age, gender, and diet pattern of the subjects.

## **METHODOLOGY**

The Study participants were selected by systemic random sampling.

The subjects of the study were 150 dental students of Dayananda Sagar College of Dental Sciences, Bengaluru out of which 124 females and 26 male participants aged 17-28 years were present.

Clinical data were collected in the oral pathology department. The examinations were conducted with the participants seated on the dental chair comfortably. The examination was exclusively visually aided by using a dental chair light, mouth mirror, probe, and latex gloves. The mamelons present were recorded. The participants were also enquired about the diet they follow and for evidence, photographs were clicked using canon1500D, and the data collected was presented for statistical analysis.

Statistical analysis of the data was performed using the chi-square test using IBM SPSS software (version 23).

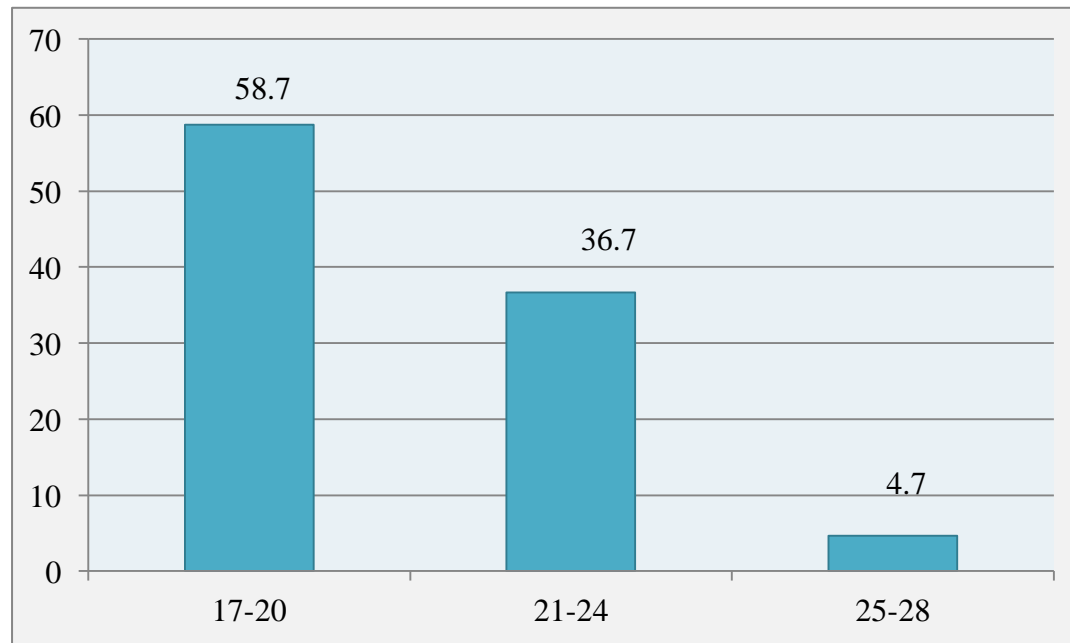
## **RESULTS**

A total of 150 participants were recruited in the study. On examination it was found that 46 participants had the prevalence of mamelons and mamelons were absent in the remaining 104 participants

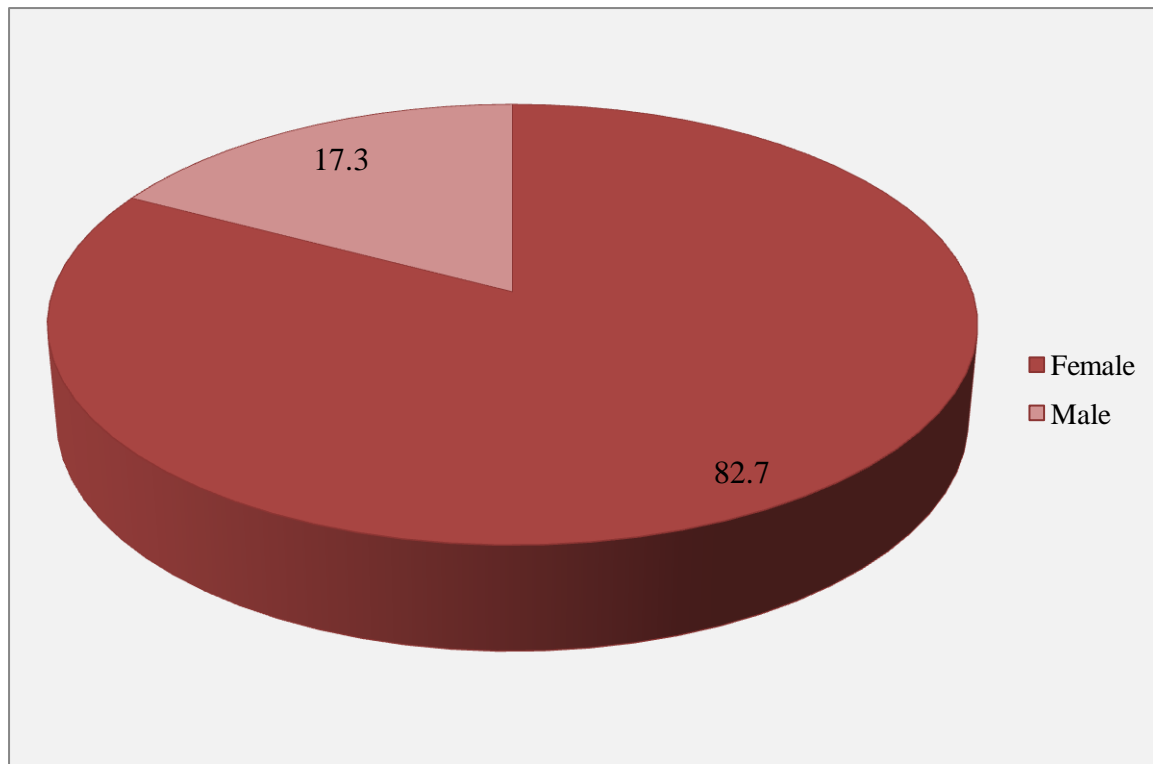
Table 1: Distribution of study population based on Mean Age

AGE	N	Minimum	Maximum	Mean	Std. Deviation
	150	17	28	20.52	1.878

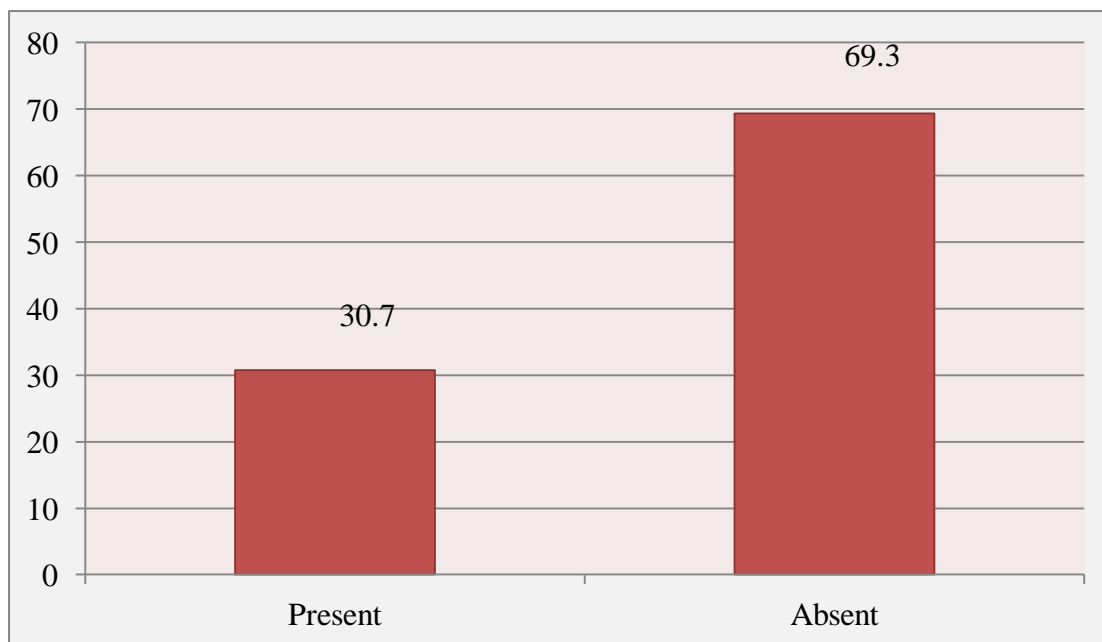
Graph 1: Distribution of study population based on Age



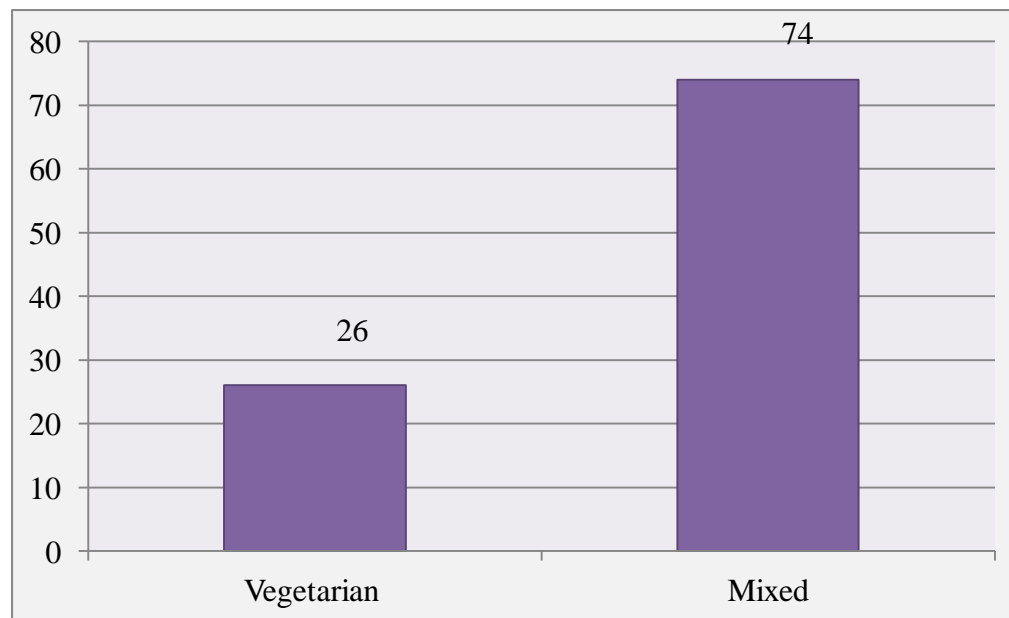
Graph 2: Distribution of study population based on Gender



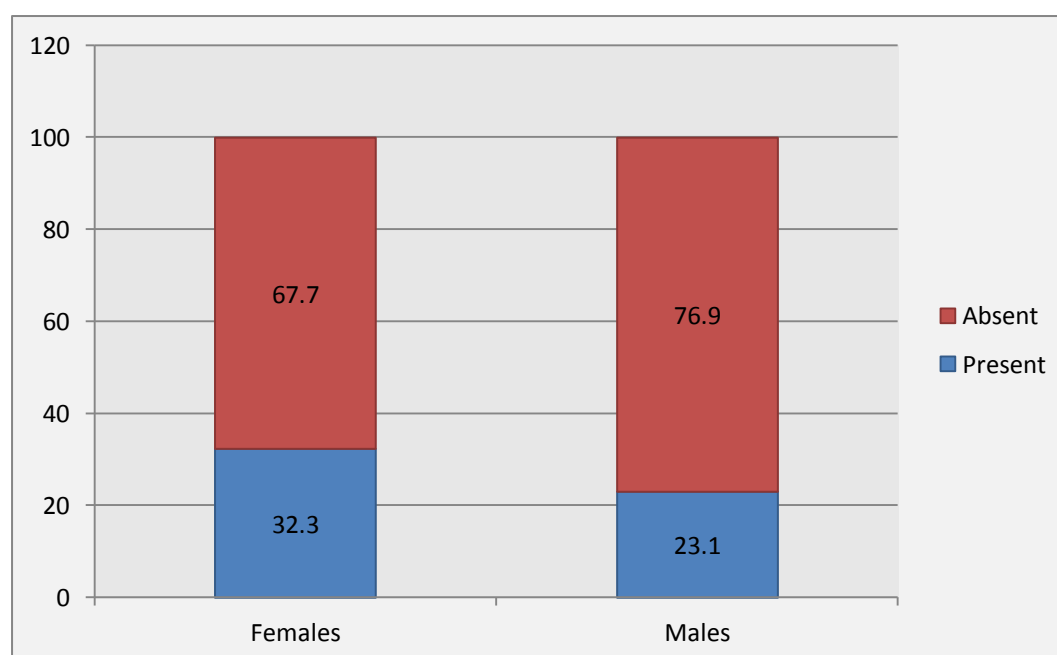
Graph 3: Distribution of study population based on Mamelons



Graph 4: Distribution of study population based on Diet

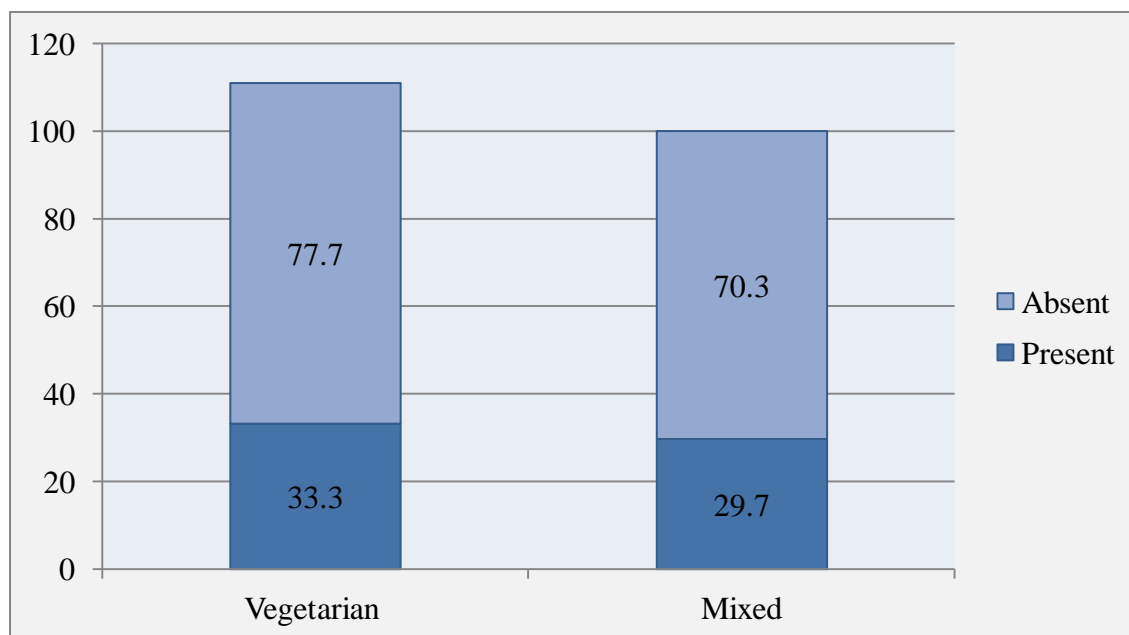


Graph 5: Comparison of study population based on Gender and Mamelons



This graph represents the association between the frequency of prevalence of mamelons among males and females and it is seen that 32.3% of females have mamelons compared to males where the prevalence of mamelons is 23.1%, indicating the frequency of prevalence of mamelons is more in females compared to males.

Graph 6: Comparison of study population based on Diet and Mamelons

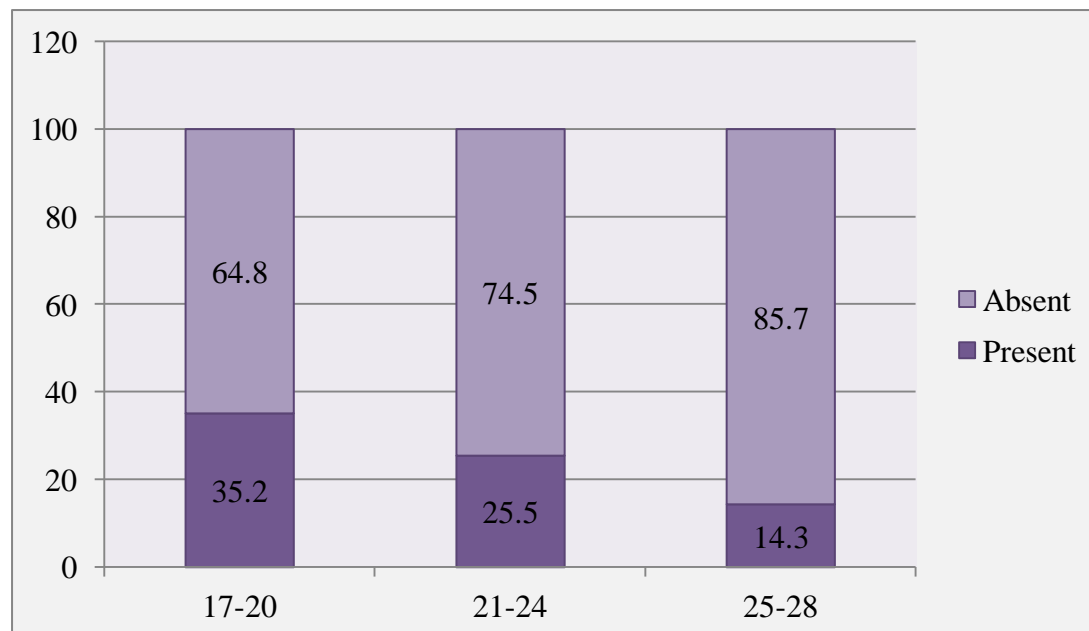


This graph represents the relation between the frequency of prevalence of mamelons among the participants who follow veg and mixed diet pattern.

It is seen that mamelons are absent in 77.7% of the participants who follow a veg diet and 70.3% of the participants who follow a mixed diet, deducing that the frequency of prevalence of mamelons is significantly higher in the participants who follow mixed diet.

Graph 7: Comparison of study population based on Age and Mamelons





The graph represents an intergroup comparison between different age groups. Mamelons are absent in 64.8% of participants aged 17-20 years, 74.5% of participants aged 21-24 years, and 85.7% of participants aged 25-28, concluding mamelons are most prevalent in the age group of 17-20 years.

## DISCUSSION

Mamelons are three small eminences, each developed on the incisal edges of the newly erupted incisors from one of the three facial developmental lobes.<sup>5</sup>

Mamelons are only enamel extensions, with no dentin underneath. This feature and their thinness make them translucent and more noticeable.<sup>6</sup>

Mamelons are absent on the primary dentition, so they can be considered as important structures to differentiate the nature of dentition.<sup>4</sup>

They are most noticeable at the age of 10 years and then regress over time. They get smoothed out when the upper and lower front teeth come into contact, it may not go away if teeth are misaligned. It usually occurs when you have an open bite, in which

the back and front teeth don't overlap each other vertically, hence the mamelons remain in adulthood.<sup>4</sup>

In many instances abnormal crown morphology may be a systemic indicator of developmental problems. The Hutchinson incisor, considered pathognomonic for prenatal syphilis, is a commonly cited example. Here, the disease is reflected in abnormalities of the incisal margin and, hence, of mamelon formation. Other abnormalities on incisors of subjects with Down's syndrome cases with cleft lip or palate, or both, enamel hypoplasia focal dermal hypoplasia and in cases with mental retardation provides the dentist with useful diagnostic indicators of developmental problems.<sup>7</sup>

The findings of this study are in agreement with those reported by Munther Alalowi et al who found that mamelons decrease with the increase in age and it is found more in females than males. This might be because men eat more coarse food compared to women. Secondly, men eat more than women, and hence their teeth are more functional than those of women.<sup>5</sup>

Oral health of an individual is interlinked to diet in several ways. Since the diet plays a very important role in the wear and tear of the tooth structure, diet was considered as a criterion to divide the samples and it was concluded that prevalence of mamelons is more in non vegetarians than vegetarians.

## **Conclusion**

The study can be concluded by saying that more evidence-based wide range studies have to be conducted to determine the influence of mamelons in assessing the bite

marks and which in turn can be a stand-out unique feature that will further help in investigations.

A great amount of research is in progress which in the coming years would evince extremely beneficial, acting as a new dimension to dental analysis.

### **Suggestions for further study**

Since there are very scarce research in this field specially on the relation between diet and prevalence of mamelons there should be more detailed research done using a

- 1.Larger sample size
- 2.Equal number of male and female participants
- 3.Equal number of participants who follow vegetarian and non vegetarian diet

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