

Research Article

# The Gummy Smile and its Concern among Dental Students - A Survey

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## I N F O

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## A B S T R A C T

**Context:** A smile can be displeasing when there is excessive gingival show. Currently, correction of a gummy smile is becoming a prime demand by the patients. An exposure of 3 mm of gingival tissue is diagnosed as a gummy smile. Many reasons contribute to a gummy smile and the availability of treatment options falls under a wide range.

**Aims:** The aim was to assess knowledge among dental students on the gummy smile and its treatment plans.

**Methods and Material:** The questions were given as Google forms to the participants of the study. Students pursuing bachelors in dentistry were chosen for the study. A set of 20 questions were framed in a questionnaire form with multiple choice questions and students were asked to pick out a single option from provided questions. Questions asked were on the etiology of the gummy smile, lip repositioning procedures, use of botox and gum contouring procedures.

**Results:** The results depict a correlation between the different treatment modalities of the gummy smile but the choice of treatment is governed by various factors such as patient's expectation, expenditure, and aesthetic sense and the skill set of the clinician. This study reveals good knowledge among the participants regarding the factors related to a gummy smile.

**Conclusion:** In a nutshell, this study indicates that the dental undergraduates have a good knowledge about the gummy smile and its treatment options available. They have an insight about the available treatment modalities but are not equipped with adequate knowledge regarding the diagnostic criteria.

**Keywords:** Aesthetics, Gummy Smile, Botox, Smile Correction, Lip Length

## Introduction

A smile is always the best form of introduction. It says more than words do and improves your appearance. It makes us attractive and is a cornerstone of social interaction. Excessive gingival display or gummy smile is one of the

main concerns among dental patients nowadays, which is esthetically unattractive. Its etiology is multifactorial. For some people due to peer pressure one's happiness might be affected by this condition which in turn largely affects the person's aesthetics.

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The gingiva plays a crucial role in the smile esthetics wherein the upper lip should be elevated around 80% of its normal length, showing teeth along with gingiva. As per Sharma et al, the gum exposure between the inferior border of upper lip and gingival margin of anterior central incisors while smiling and 2-4 mm of maxillary incisor edges with the lips at rest are considered acceptable. However, gingival exposure of more than 2 mm while smiling is considered excessive gingival display or gummy smile. It occurs more in females than males. Short or hyperactive upper lip, vertical maxillary excess, excess overbite, gingival enlargement, altered or delayed passive eruption and any combination can be considered etiological.

Treatment options available are orthognathic surgery, lip repositioning surgery; gingivectomy and non surgical options include BOTOX injections and LASERS. Gum contouring which uses LASERS is the new venture. Having

overall knowledge of the cause and treatment of each case of excessive gingival display is necessary for planning correct diagnosis and treatment. The aim of this study was to assess the attitude towards the gummy smile as well as its treatment options among dental students.

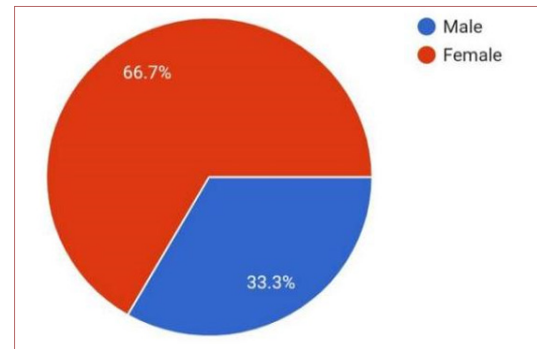


Figure 1. Gender Distribution

Table I. Calculated Percentage for different Aspects to Assess the Knowledge on Gummy Smile

Question	Option Selected	Responses (%)
Smile satisfaction	Yes	283 (94.2%)
Awareness on Gummy Smile	yes	180 (60%)
Aesthetics Concern with Gummy Smile	yes	280 (93.3%)
Awareness on Etiological factor for Gummy smile	yes	247 (82.5%)
Awareness of gingival exposure	yes	150 (50%)
Type of Smile line	High smile line	247 (82.5%)
High Smile Line	More than 2 mm of apical display	192 (64.2%)
Awareness of factors associated with gummy smile	yes	155(51.7%)
Awareness on Treatment options	no	133(44.6%)
Awareness of surgical options	yes	208(69.4%)
Awareness on the advantages of lip repositioning surgery	yes	197 (65.8%)
Awareness about BOTOX	yes	270 (90.1%)
Awareness on the treatment modality of BOTOX	yes	211 (70.2%)
Awareness on Adverse Effects of BOTOX	yes	226 (75.2%)
Orthognathic surgery is more complicated than lip Repositioning surgery	Agreed	134 (44.6%)
Awareness on Gum Contouring Surgery	yes	218 (72.7%)
Awareness on the armamentarium used	yes	283 (94.2%)
Awareness on the gum contouring Surgical procedure	yes	136 (45.2%)
Awareness on the Complications of Various procedureds	yes	166 (55.4%)
Awareness on the cost effectiveness of Various procedureds	yes	164 (54.5%)

## Subjects and Methods

The questions were given as Google forms to dental students. Students pursuing bachelors in dentistry were chosen for the study. A set of 20 questions in a questionnaire form were framed with multiple choice questions. The students had to provide a single answer. The questionnaire consisted of questions related to gummy smile and its treatment options. The survey was conducted among the internship, third year, and final year students of Chettinad Dental College and Research Institute which comprised 300 students. The students studying in the preclinical years of study were excluded from the study. Students who participated in the study were asked about gummy smile, factors associated with gummy smile, normal smile line and the treatment options available for gummy smile. The questions had a choice of three/ four options and the students had to provide a single answer.

## Result

Out of 300 students, 66.7% participated in the study were women and the rest 33.3% were men (Figure 1).

About 20 questions with different options were distributed among 300 Dental students at Chettinad Dental College and Research Institute and the responses were collected. Among the responses collected, 94.2% of students were satisfied with their smile. 60% has an awareness about gummy smile and 93.3% believed that gummy smile affects aesthetics. 82.5% of the students recognised the etiological factors for the Gummy smile and were able to differentiate between high and low smile lines. Out of 82.5%, only 64.2% of the students were able to define the smile lines accurately. This infers that the students had rather a superficial knowledge on the diagnosis of the gummy smile.

44.6% of the students were aware of the available treatment options out of which only 69.4% knew about the surgical options and agreed that orthognathic surgery is more complicated than lip repositioning surgery. 90.1% had a fair knowledge about BOTOX but only 70.2% knew about the treatment modality and 75.2% were aware about the adverse effects of BOTOX. Though 72.7% were aware about gum repositioning surgery, only 45.2% had a deeper insight on the surgical procedure. Overall complications of various procedures were known to 55.4% of the students and 54.5% were exposed to the cost factor which reveals that the students knew about the various treatment options for correction of gummy smile but have failed to acquire profound knowledge about the surgical procedures, complications and the expenses that can come through (Table 1).

## Discussion

A majority of people are satisfied and happy with their

smile though some are not. Gingival exposure is considered acceptable to a certain extent since it adds to aesthetic appearance. Gummy smile or excessive gingival show is a non pathological condition causing an unaesthetic smile. The clinician must have the ability to gratify the needs of the patients and align the treatment to achieve the treatment. As per dental literature, a smile line is classified as:

- Normal Smile Line: Inferior rim of upper lip with gums measuring 1-2 mm
- Low Smile Line: inferior rim of upper lip covering over 25% crown length of upper incisors
- High Smile Line: inferior rim of upper lip covering more than 2mm of free marginal gingiva

The etiology can be skeletal or dental or both. A Gummy smile, if left untreated may have potential implications on periodontium, but a point of concern is the relapse rate. Many surgical procedures for correcting the gummy smile have been advocated to cope up with the growing demands of aesthetics. Orthognathic surgery may not be preferred to treat a gummy smile as it involves surgical morbidity, but it seems to be suitable for conditions indicated for the same.

Lip repositioning surgery is a simple alternative surgical procedure that is safe and is minimally invasive and has less postoperative complications than orthognathic surgeries. LASER assisted lip repositioning surgery is considered to be a good option as it requires minimal instrumentation and promotes excellent post operative healing. Gum contouring is a totally cosmetic procedure which typically uses LASERS, scalpels and radiosurgery.

Another alternative which is non-surgical is BOTOX injections. BOTOX produced by clostridium botulinum has been indicated in conditions related to excessive muscle contractions. This method is safe and most economical. Using botox for treatment requires a thorough knowledge of its dosage, temporary nature, area for administering injection and the probable side effects. The present study shows that the dental students had a fair knowledge about the gummy smile and the associated treatment options.

A majority of the students who participated in the study had a good knowledge on the etiology of gummy smile. A substantial number of students mention that the gummy smile affects facial aesthetics. The awareness on the gold standard proportion for the normal smile line was a bit low. Many of the students who had participated in the study also had a fair knowledge on both surgical and non-surgical treatment options that are available for the correction of the gummy smile. The students did not have adequate knowledge on the factors associated with a gummy smile related to the teeth.

The attitude towards various treatment options in order to overcome the recurrence or relapse was good. The

students also had a good knowledge on which the best method for correcting the condition is. The student showed a keen interest in learning and gaining more knowledge towards the gummy smile and its treatment options. Many interactive clinical sessions could be planned in institutions to develop the best attitude on ways to diagnose and treat the gummy smile.

### Conclusion

The gummy smile has started being noticed recently. Thus, all clinicians are focusing on finding the best treatment that has the least complication and possibility of relapse, and has the most satisfying outcome for all patients. This study indicates that the dental undergraduates have a good knowledge towards gummy smile and its treatment options available. They are equipped with the knowledge of the available treatment modalities but do not possess the awareness of the diagnostic criteria. The dentists must be aware of the latest treatment methods and their advantages and disadvantages.

**Conflicts of Interest:** None

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