



Aesthetic Perception of Gummy Smile Among Patients in Chennai City, India

Dharshana Rammohan¹, Rajmohan.M², Suganya.P³, Dinesh Dhamodhar², Sathiyapriya.S⁴, Prabu.D⁵, Bharathwaj.V.V⁴, Sindhu.R⁴, M.R.Prashanth³

¹Undergraduate student, SRM dental college, Ramapuram, Chennai, India

²Reader, Department of Public Health Dentistry, SRM dental college, Ramapuram, Chennai, India

³Postgraduate student, Department of Public Health Dentistry, SRM dental college, Ramapuram, Chennai, India

⁴Senior Lecturer, Department of Public Health Dentistry, SRM dental college, Ramapuram, Chennai, India

⁵Professor and Head of the Department, Department of Public Health Dentistry, SRM dental college, Ramapuram, Chennai, India

*Corresponding Author:

Prabu.D

Master of Dental Surgery, Professor and Head of the Department

Department of Public Health Dentistry

SRM Dental college, Ramapuram, Chennai-600089, Tamilnadu, India

Email- researchphdsrc@gmail.com

Mobile no: 8072019608

ABSTRACT:

Aim: The study aims to analyse the aesthetic perception of gummy smiles among patients in Chennai city, India.

Materials and method: A cross-sectional study was conducted in a sample of 170 gummy smile patients, both male and female aged 17 to 60 years in Chennai based on simple random sampling method. The data was collected through a questionnaire containing 21 questions.

Results: 49.4% of the respondents are somewhat satisfied and 43% of the respondents are very satisfied with their smile.

Conclusion: Patients are somewhat satisfied with their smile, but they are still willing to have a better smile and undergo treatment.

Keywords: Excessive Gingival Display, Hyperactive lip, Crown lengthening, Botox, Lip repositioning, Depigmentation

INTRODUCTION:

A gummy smile is a type of smile in which there is more than 2mm of gum tissue shown above the upper teeth. It is also called Excessive Gingival Display. Some of the main causes of gummy smiles, Bad Bite: When the upper jaw doesn't align with the lower jaw, it is known as a bad bite. This most often causes the upper jaw to protrude out farther than it should, resulting in a gummy smile [3].

Hyperactive Lip: It occurs when the muscles in the upper lip and under the nose are hyperactive. The repeated overuse of these muscles can cause the top lip to raise and expose gum tissue [3]. Excessive Gum Tissue: During the eruption of permanent teeth, sometimes there is an overgrowth of gums that covers too much of the teeth. This is mainly seen when normal passive eruption does not occur in some patients resulting in short clinical crowns due to excessive gingival coverage.

And this is called Altered or Delayed Passive Eruption. In addition, sometimes infection caused by inflammation and swelling covers too much of teeth which is preventable by practising good brushing and flossing habits [3]. Other causes include Teeth that are small compared to gums due to genetics or could also occur with insufficient crown length. The altered or Delayed passive eruption could also be a cause [3]. An overgrowth of the upper jaw, called Vertical Maxillary Excess, makes gums bulge out. If the lower face is longer than the midface, then the above is the aetiology of the gingival display. Therefore, orthodontic treatment along with surgery is advised in certain patients [3,5].

Treatment: Fixing a Gummy smile could be done by scaling, root planning, gum lift/crown lengthening, lip lowering, orthodontics, Scaling and Root planning: Gummy Smile is caused by inflamed and infected gums treatment starts with deep professional cleaning called scaling and root planing. This advanced cleaning reaches deep into gum pockets around each tooth to remove bacteria and help heal. Gum lift / Crown lengthening: If there are too much of gums covering the teeth, crown lengthening or gum lift is done. Gum lift removes some amount of gum tissue around the teeth, which restructures the gum line to be higher, showing off more pearly white teeth. In case there is an abundance of gum tissue, the dentist may recommend crown

lengthening, which changes the structure of gums and the bone around the teeth. It is also done when crowns are short, thereby reducing the gingival display^[7,8]. **Lip lowering:** It is also called Lip Repositioning. A small section of gum tissue under the upper lip is removed, and the top and bottom parts are stitched together, creating a shorter looking lip. In certain cases, it can be used as an easier, less complicated alternative to major surgical methods, providing a pleasant satisfactory camouflage effect with lower morbidity. It could be done either alone or with other techniques. It is a surgical way to correct a gummy smile by limiting the retraction of the elevator smile muscles like orbicularis oris, levator anguli oris, levator labii superioris, zygomaticus minor. Lip lowering along with Mucosal Strip Technique is done in some cases of Vertical maxillary extension^[1,2,4,5].

Orthodontics: Gummy Smile can be caused by a bad Smile. Braces and clear aligners help adjust a bite into its ideal position and reduce the amount of gum tissue that shows. In the case of Vertical maxillary excess, orthognathic surgery is required^[3,5]. **Botox:** It is also known as Botulinum Toxin Type A (BTX-A). It is mainly used as injections for neuromuscular correction of gummy smile, which is caused by a hyperactive or hyper-functional upper lip that is, if moving your lips too far over your gum line, Botulinum toxin is used. Here the upper lip elevator muscles become effective. It is less costly and less intrusive than surgery^[1,12]. **Laser Gum Contouring:** Using dental lasers can help remove extra gum tissue. Laser-assisted Lip Repositioning Technique is also reliable and a less invasive alternative to conventional Scalpel Lip repositioning technique^[6].

Gingival Pigmentation: Gingival pigmentation is of 2 types physiologic and non-physiologic gingival pigmentation. The normal gingiva colour may range from light coral pink to heavy pigmented. In the case of diseased gingiva, the colour could be red, bluish pink, bluish-red. A disturbance in the colour of the gingiva could get highlighted in an individual with a gummy smile. Healthy gingiva appears coral pink, but physiologic variations may produce pigmented patches. It is highly prevalent in the anterior region^[13]. Harmony of Smile is based not only on the colour of teeth but also on the gingiva's colour. It can be an aesthetic problem for some patients, especially when located in the anterior labial gingiva combined with a high smile line and not uniform in appearance^[7].

Aetiology – Intensity of Melanogenesis, Depth of epithelial cornification, Arrangement of gingival vascularity. Moreover, colour variation may not be uniform and may exist as unilateral, bilateral, mottled, macular and involve gingival papilla alone or extend throughout the gingiva onto other soft tissues. **Treatment – Gingival Depigmentation** is the treatment done. Gingival Depigmentation is a type of periodontal plastic surgery where the hyperpigmentation of the gingiva is eliminated superficially from the gingival epithelium. It is eliminated by various techniques like electrosurgery, cryosurgery, abrasion with diamond bur and lasers^[7,11]. **Surgical Depigmentation – Scalpel Surgical Technique, Cryosurgery, Electrosurgery, Laser surgery.** Laser surgery – Diode laser surgery is a minimally invasive and effective therapy for gingival Depigmentation. It causes least discomfort to the patient and is safe as well. It is one effective modality that can provide optimal aesthetics too. It is of less pain and faster healing with better aesthetic outcomes. But there are chances of repigmentation^[9,10].

Scalpel surgery – Surgical removal of the pigmented area is done using a scalpel under anaesthesia. It is one of the earliest methods of Depigmentation and is still a choice today. The gingival epithelium is removed along with a layer of connective tissue to make sure there is complete removal. There is least recurrence as well^[13]. **Cryosurgery –** It is a branch of therapeutics where they make use of local freezing for the removal of living tissues. Cryosurgery has shown satisfactory results in gingival Depigmentation. It is an easy procedure that has a lack of bleeding and scar formation as well. It is considered to be a desirable treatment^[14]. **Masking method with graft - Free gingival grafts, connective tissue graft.** The current study aims to analyse the aesthetic perception of gummy Smiles among patients in Chennai

MATERIALS AND METHODS:

A pool of gummy smile patients of age 17 to 60 was surveyed from Chennai between the month of October to December 2021. The Sample set included both Male and Female patients. The Survey was conducted in the form of a questionnaire via google documents. The Survey comprises 21 multiple choice questions aiming to understand the patient's perception towards their gummy smile. The questionnaire recorded the details of the respondents like name, age, gender, occupation.

RESULTS:

TABLE 1: Percentage of response among Gummy Patients.

| CRITERIA | RESPONSES n(%) |
|---|----------------|
| Willingness to take treatment for gummy Smile | 121 (70%) |
| Gummy smile can affect social success | 106 (61%) |
| Gummy smile has a significant effect on general appearance. | 151 (86%) |
| Most people have nicer smile than their own Smile | 106 (61%) |

| | |
|--|-----------|
| Not concerned about what others think about their Smile | 105 (60%) |
| Hide their mouth while smiling | 113 (64%) |
| Conscious about their Smile | 124 (71%) |
| Satisfied with the colour of the gums | 118 (69%) |
| There is too much gum exposed when they smile | 107 (62%) |
| Not satisfied with the amount of gum exposed when they smile | 90 (52%) |

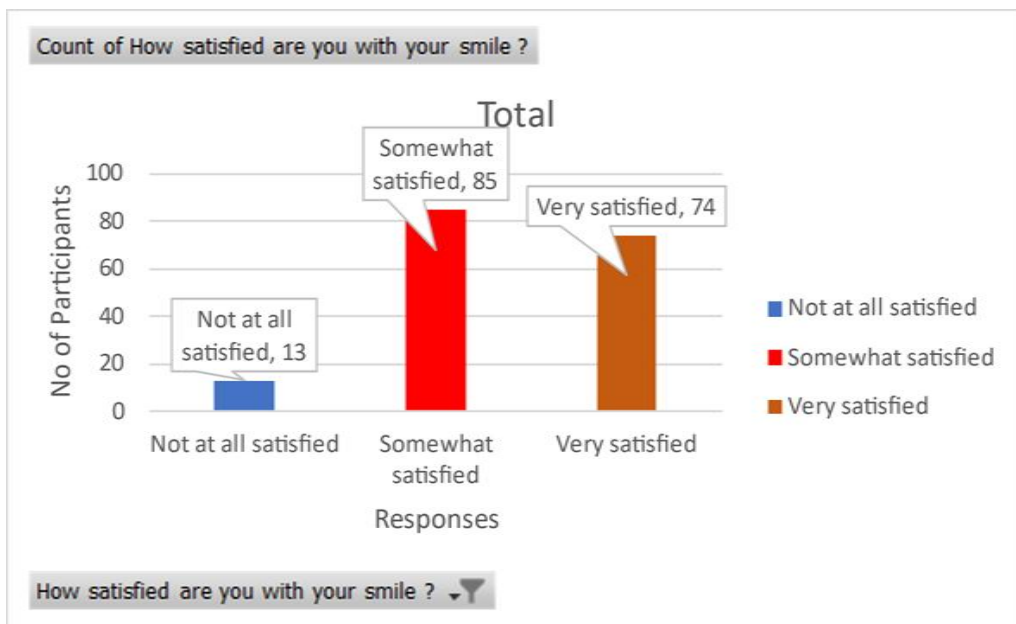


FIGURE 1: Count of patients satisfied with their smile

FIGURE 1 shows the number of patients satisfied with their smile – 49% (85) of the patients chose SOMEWHAT SATISFIED

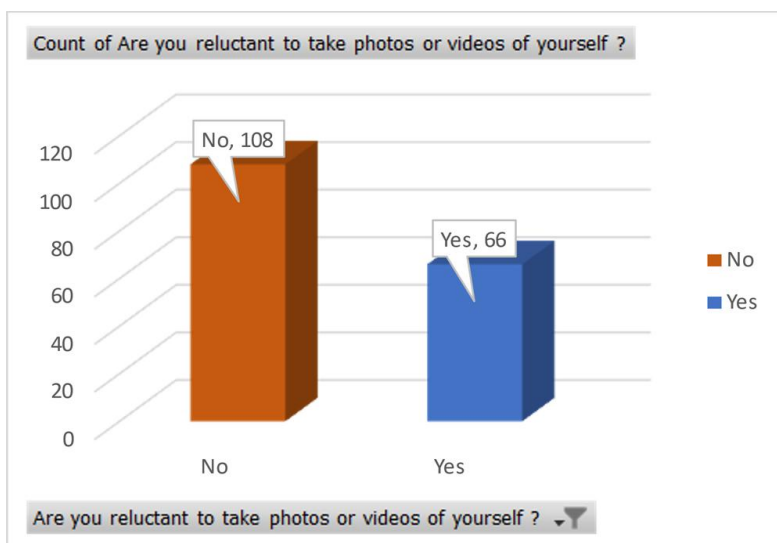


FIGURE 2: Count of patients reluctant to take photos or videos of their own

Figure 2 shows the number of patients that are reluctant to take their own pictures or videos – 62% (108) of the patients chose NO.

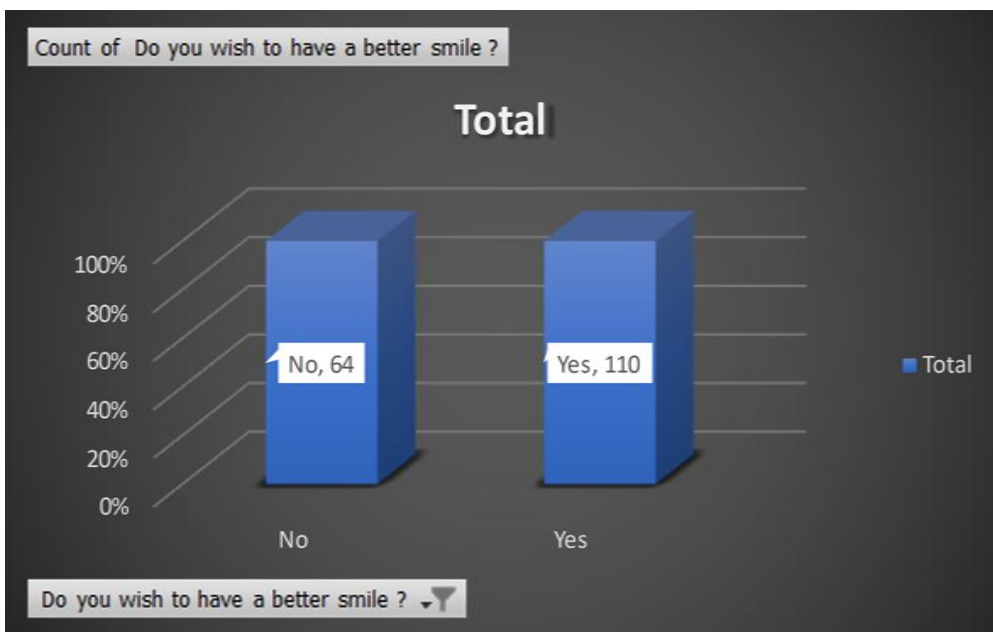


FIGURE 3: Count of Patients that wish to have a better smile

FIGURE 3 shows the number of patients that are willing to have a better smile – 63% (110) of patients chose YES.

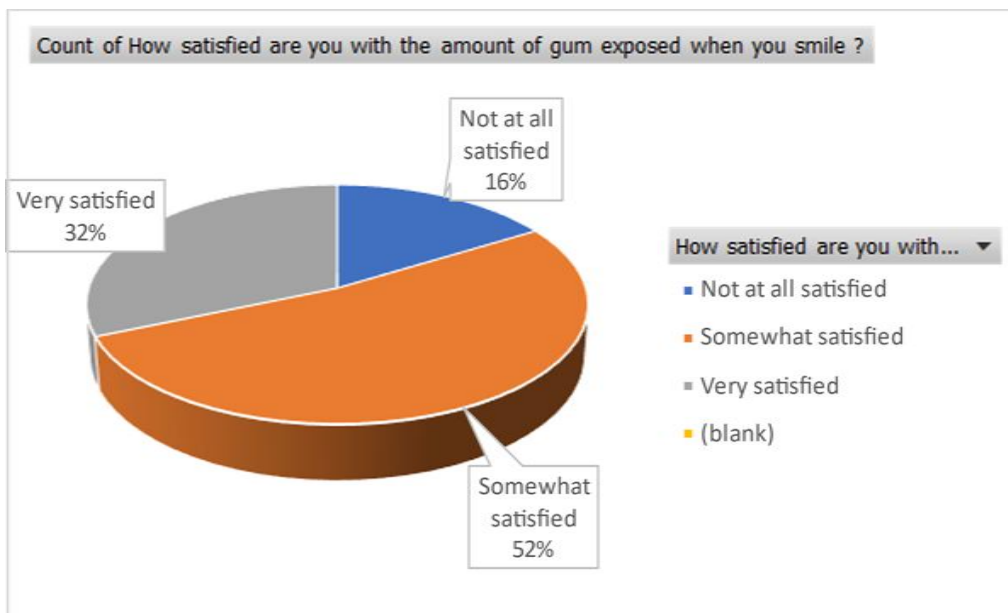


FIGURE 4: Count of patients satisfied with the amount of gums exposed when they smile.

FIGURE 4 shows the number of patients satisfied with the amount of gums exposed when they smile – 52% of the patients chose SOMEWHAT SATISFIED.

TABLE 2: Count of what is the colour of the patient's gums.

Observation and Calculation

| Colour Of Gums | Response | Average |
|-----------------------------------|---------------|-------------|
| Pale Pink | 73 | 57 |
| Pale pink with brown pigmentation | 42 | 57 |
| Reddish Pink | 53 | 57 |
| | pValue | 0.71 |

Discussion:

A gummy smile is a type of smile that shows too much of your gum line 2mm above the upper teeth, and it is also called Excessive Gingival Display. A gummy smile could be caused by various reasons like bad or incorrect bite, hyperactive or short upper lip and jaw development problems^[3]. A gummy smile isn't always a medical issue that has to be fixed right away, but some people with Gummy Smile do have insecurity and could be a cause of embarrassment as well.

The most appealing smile photographs were those with upper lip coverage of the central incisors around 0–2 mm, according to Geron and Atalia (2005), who evaluated the influence of gingival show on the impression of smile aesthetics in laypeople. If unattractive smiles are defined as those with aesthetic scores of 0 to 50, and attractive smiles are defined as those with aesthetic scores of 51 to 100, orthodontists considered smiles with 4 mm upper lip coverage and 1 mm gingival display to be attractive and smiles with 5 mm upper lip coverage and over 2 mm gingival display to be unattractive^[14].

Even though most of the respondents are somewhat satisfied with their gummy smile, they are still willing to have a better smile as they think other people have a better smile than their own, and most of the respondents also feel very conscious when they smile, so they tend to hide their mouth while smiling. Most of the patients also feel that their smile has a significant effect on their general appearance^[13].

On the other hand, the positive side is that most of the respondents are satisfied with the colour of their gums and also are not concerned about what others think about their smiles. Most of the patients do not shy away from the camera and are not reluctant to take their own pictures or videos. The majority of the respondents agree that their smile does not affect their social success. But luckily, there are various treatments that can be opted to make sure that gummy smile is a problem in the past. Treatment options that are to have opted vary from person to person as it has to be determined by the issue, that is, if it's purely aesthetic or it's due to an underlying problem that is to be corrected to relieve the gummy smile. Only a few patients with a gummy smile have undergone treatment like crown lengthening, and the rest of them have not undergone any treatment. But these patients are willing to take treatment for a better smile^[12].

The treatment options available are both non-surgical and surgical procedure which includes orthodontic treatment, crown, gingivectomy, lip lowering surgery^[4]. In this study, out of 172 people that were surveyed, most of the people are concerned and conscious about their smile, and they are willing to correct their smile as well, but they are not concerned about others' opinions or what others think about their smile. And they are willing to have a change for themselves and not because of others or the society.

CONCLUSION:

There is a mixed perception on gummy smile aesthetics, and there is a need for more awareness on dental procedures and dental aesthetic treatments among the population.

This awareness and increased knowledge about dental treatments could be brought through media, social media, camps so that patients can seek help from the dentist and improve their smile and oral health care as well.

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