

# Knowledge and Awareness About Esthetic Procedures in Periodontics Among Undergraduate Dental Students

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## ABSTRACT

The current level of awareness on beauty has driven a higher demand for aesthetic dentistry. The shape, position and appearance of the gingival tissue influences the aesthetics of the smile. Various techniques for gingival deformities have been introduced in recent years to meet the aesthetic needs of the patient with functional requirements. The aim of this study was to evaluate the knowledge and awareness about esthetic procedures in periodontics among undergraduate dental students. A 7-item questionnaire was prepared and circulated through an online portal among undergraduate dental students. A total of 100 students took up the survey among which 28 students were males and 72 students were females. The results obtained from the survey were tabulated, analysed and represented graphically using SPSS software (Version 23). Frequency distribution and percentage and chi-square test were done. In the present study, 86% of the undergraduate students were aware of gummy smile, 72% were aware of black triangle and 90% were aware of gingival hyperpigmentation. However, the knowledge on the treatment modalities for such conditions were inadequate. 48% were not aware of the treatment options for gummy smile, 42% were not aware of various gingival depigmentation techniques. Also, females had more knowledge and awareness as compared to males. This study emphasizes the need for more awareness about the esthetic procedures in periodontics must be created among undergraduate dental students.

**KEY WORDS:** ESTHETICS; AWARENESS; GINGIVA; SURGICAL PROCEDURES.

## INTRODUCTION

The current level of awareness on beauty has driven a higher demand for aesthetic dentistry. Aesthetic dental procedures and periodontal treatment have become inseparable. In the past, the aim of periodontal

treatment was directed more at preservation care and periodontal health restorations. However, the need to improve appearance in the recent years has increased the demand for aesthetic procedures in periodontics. (Jhamb, 2014) Assessment of gingival esthetics is of critical importance in patients with high lip line, where the gingival margins are clearly visible, as well as for patients with high esthetic demands. (Rufenacht, 2000) Treatment modalities for developing gingival harmony may involve periodontal surgeries.

Gingival recession presents as soft tissue pathology with various etiological factors and with a high prevalence in association with age. (Shkreta et al., 2018) Gingival recession is defined as an exposure of the root surface

## ARTICLE INFORMATION

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of the teeth as a result of apical migration of the gingival margin beyond the cementoenamel junction. (Gorman, 1967; Winders, 1971; Gartrell and Mathews, 1976) Periodontal surgery involves intrusion or extrusion techniques. Excess gingiva can be corrected by resection periodontal surgeries like gingivectomy or crown lengthening procedures Gingival recession can be corrected by additive periodontal surgical procedures like tissue grafts, guided tissue regeneration, etc. (Palmer, 1990; Tarnow, 1992; Prato, 2000; Periodontology, Research and Science and Therapy Committee of the American Academy of Periodontology, 2005)

There are various other aesthetic concerns like gingival hyperpigmentation, black triangle, etc. Open gingival embrasures are known as black triangles. It is a state of disappearance of the interdental papillae which serves as a biological barrier for the periodontal structures underneath. It also has an important role in aesthetics.

The gingival colour also contributes to a beautiful smile. (Grover et al., 2014) Excessive deposition of melanin on the supre basal layers of epithelium leads to gingival pigmentation. Various depigmentation techniques have been employed in the recent years. (Patil et al., 2015)

Previously we have worked on plenty of topics in periodontology (Ramesh, Ravi and Kaarthikeyan, 2017; Ravi et al., 2017; Arjunkumar, 2018; Gajendran, Parthasarathy and Tadepalli, 2018; Jain and Nazar, 2018; Kavarthapu and Thamaraiselvan, 2018; Ramesh et al., 2018, 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Kaarthikeyan, Jayakumar and Sivakumar, 2019; Kavarthapu and Malaiappan, 2019; Murthykumar, Arjunkumar and Jayaseelan, 2019; Vijayashree Priyadharsini, 2019). Now we are planning to work on the knowledge and awareness on esthetic procedures in periodontics among undergraduate dental students.

Table 1. Questionnaire to assess the knowledge and awareness about esthetic procedures in periodontics.

S.No	Questions	Options
1.	Are you aware of gummy smile?	a. Yes b. No
2.	What is the commonest treatment of choice for gummy smile?	a. Gingivectomy b. Flap Surgery
3.	Are you aware that lip repositioning is done to correct unesthetic gummy smile?	a. Yes b. No
4.	Are you aware of the term black triangle?	a. Yes b. No
5.	What do you think is the etiology of black triangle?	a. Recession b. Bone loss c. Angulated root d. All of the above e. Not aware
6.	Are you aware of gingival depigmentation?	a. Yes b. No
7.	What are the gingival depigmentation methods you are aware of?	a. Chemical method b. Scalpel surgical technique c. Gingival abrasion d. All of the above e. Not aware

## MATERIAL AND METHODS

The present study was a questionnaire based study. A 7-item questionnaire was prepared (Table 1) and circulated through an online portal among undergraduate dental students. A total of 100 students took up the survey among which 28 students were males and 72 students were females. The results obtained from the survey were tabulated, analysed and represented graphically using SPSS software (Version 23). Frequency distribution and percentage was calculated. Then the chi-square test was done to find out the association between the responses with respect to gender.

## RESULTS AND DISCUSSION

The present study was to evaluate the knowledge and awareness about esthetic procedures in periodontics among undergraduate dental students. A total of 100 undergraduate dental students took up the survey among which 28 were male students and 72 were female students. When the awareness of gummy smile was analysed, 21% of the male respondents were aware of gummy smile and 65% of female respondents were aware of it. [Figure 1] When the common treatment option for gummy smile was analysed, 17% of the male respondents responded as gingivectomy and 11% responded as flap surgery. Among the female respondents, 52% responded as

gingivectomy, 20% as flap surgery. [Figure 2] When the awareness on lip repositioning technique for unesthetic gummy smile was analysed, 19% of the male respondents were aware of it while 9% were not aware. 65% of the female respondents were aware and 7% were not aware of it. [Figure 3]

Figure 1: Bar graph showing the association between gender and awareness of gummy smile. X axis represents the gender and Y axis represents the number of respondents who were aware and not aware of gummy smile. Majority of the female respondents (65%) were aware of gummy smile. Association between gender and awareness of gummy smile was statistically significant. (Chi-square test;  $p=0.048$ )

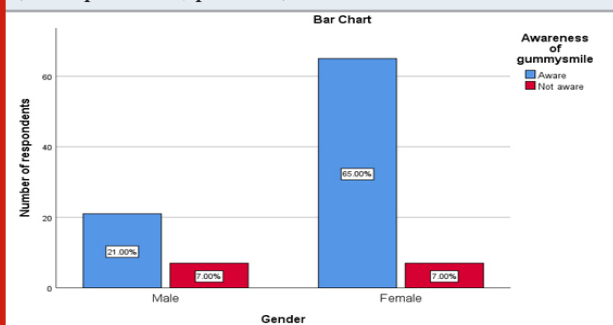
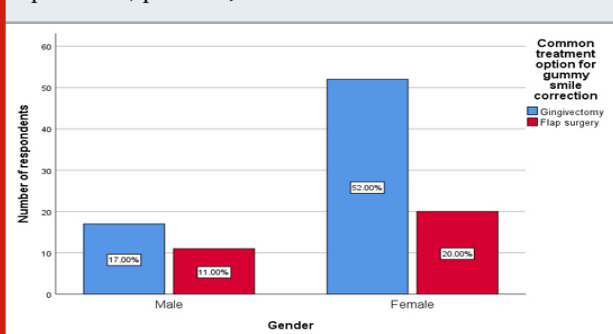


Figure 2: Bar graph showing the association between gender and awareness about the common treatment option for gummy smile. X axis represents the gender and Y axis represents the number of respondents who were aware and not aware of the common treatment option for gummy smile. Majority of the female respondents (52%) were aware that gingivectomy is the common treatment option for gummy smile. However, association between gender and awareness about the common treatment option for gummy smile was not statistically significant. (Chi-square test;  $p=0.264$ )



When the awareness of the term black triangle was analysed, 16% of the male respondents were aware and 12% were not aware. Among the female participants, 57% were aware of it while 15% were not aware of it. [Figure 4] When the awareness on etiology of black triangle was analysed, 6% of male respondents were aware of all the causes while 11% were not aware of it. Among the female respondents, 39% were aware of all the causes while 15% were not aware of the causes. [Figure 5] When the

awareness on gingival depigmentation technique was analysed, 25% of male respondents were aware of it while 3% were not aware. Among female respondents, 65% were aware of it and 7% were not aware of it. [Figure 6] When the awareness on various gingival depigmentation methods were analysed, 5% of male respondents were aware of all the techniques while 11% were not aware of it. Among the female respondents, 17% were aware of all the techniques while 31% were not aware of it. [Figure 7].

Figure 3: Bar graph showing the association between gender and awareness about lip repositioning technique for unesthetic gummy smile. X axis represents the gender and Y axis represents the number of respondents who were aware and not aware of lip repositioning technique. Majority of the female respondents (65%) were aware of the lip repositioning technique. Association between gender and awareness about lip repositioning technique for unesthetic gummy smile was statistically significant. (Chi-square test;  $p=0.006$ ).

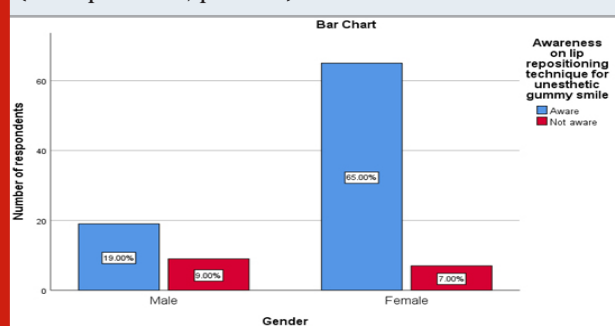
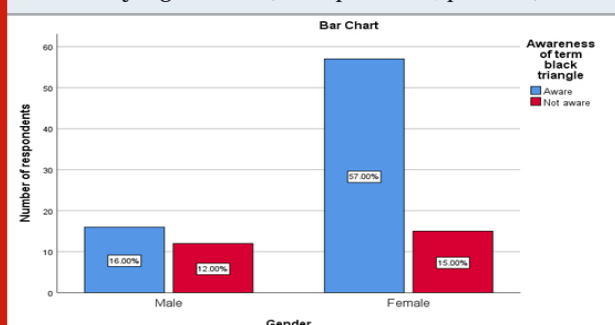


Figure 4: Bar graph showing the association between gender and awareness about the term black triangle. X axis represents the gender and Y axis represents the number of respondents who were aware and not aware of black triangle. Majority of the female respondents (57%) were aware of the black triangle. Association between gender and awareness about the term black triangle was statistically significant. (Chi-square test;  $p=0.026$ ).



Cosmetic expectations have increased with time and patients are more concerned with gingival esthetics and smile designing in the recent years. Numerous procedures provide solutions to various esthetic deformities of the gingiva. The mucogingival defects include excessive gingiva, gingival recession, hyperpigmentation, etc.

It can result in various conditions like black triangle, gummy smile, gingival hyperpigmentation, etc. Usually gingivoplasty, a resective gingival surgery is recommended. Recently techniques like lip repositioning, laser treatment have been introduced for correcting gummy smile.(Gonçalves et al., 2017)

Figure 5: Bar graph showing the association between gender and awareness about the etiology of black triangle. X axis represents the gender and Y axis represents the number of respondents who were aware and not aware of the etiology of black triangle. Majority of the female respondents (39%) were aware of all the etiology of black triangle. Association between gender and awareness about the etiology of black triangle was statistically significant. (Chi-square test; p=0.004)

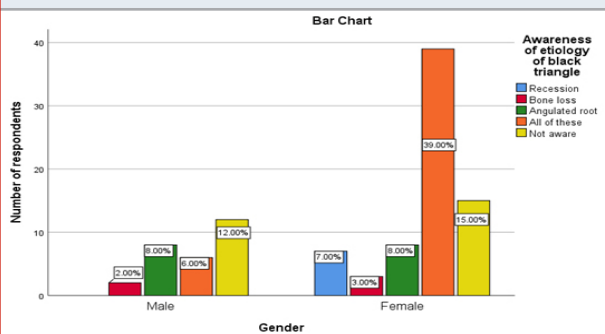
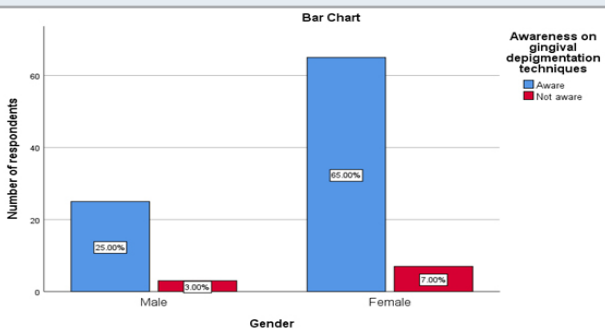
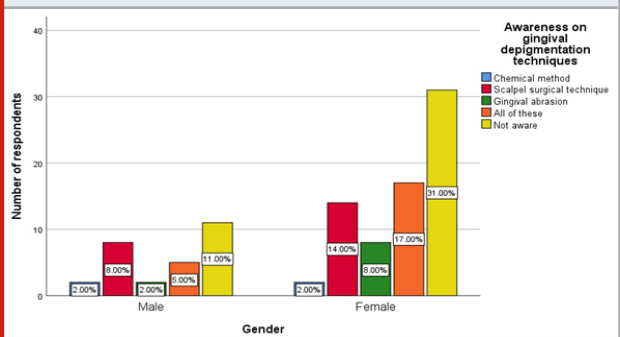


Figure 6: Bar graph showing the association between gender and awareness about gingival hyperpigmentation. X axis represents the gender and Y axis represents the number of respondents who were aware and not aware of the gingival depigmentation technique. Majority of the female respondents (65%) were aware of gingival depigmentation technique. However, association between gender and awareness about gingival depigmentation technique was not statistically significant. (Chi-square test; p=0.882)



Loss of interdental papilla results in a condition called black triangle. One of the aesthetic difficulties in treatment of black triangle is related to its ability to restore the missing papilla in the maxillary anterior portion. (Lubis, Nasution and Zulkarnain, 2018) Various conditions like recession, bone loss, angulated root, triangular crown, aging, midline diastema have been reported to cause black triangle. (Al-Zarea et al., 2015) Various surgical and non surgical techniques are available to treat black

Figure 7: Bar graph showing the association between gender and awareness about gingival depigmentation techniques. X axis represents the gender and Y axis represents the number of respondents who were aware and not aware of the gingival depigmentation techniques. Only 17% of the female respondents were aware of all the gingival depigmentation techniques. Association between gender and awareness about gingival depigmentation techniques was not statistically significant. (Chi-square test; p=0.660)



triangle, Surgical approach includes pedicle graft, envelope type flap, etc.(Ozenci, no date)

Gingival appearance is a component for an attractive smile. Gingival hyperpigmentation can occur due to deposition of melanin pigment. ('Surgical Gingival Depigmentation: A Case Report', 2012) Various depigmentation techniques have been introduced in the recent years. It includes surgical scalpel technique, bar abrasion method, electrosurgery, cryosurgery, laser , chemical exfoliation, etc. (S. et al., 2013; Hosadurga et al., 2017)

In the present study, 86% of the undergraduate students were aware of gummy smile, 72% were aware of black triangle and 90% were aware of gingival hyperpigmentation. However, the knowledge on the treatment modalities for such conditions were inadequate. 48% were not aware of the treatment options for gummy smile, 42% were not aware of various gingival depigmentation techniques.

## CONCLUSION

From this study we can conclude that the majority of the students were aware of the gingival conditions like gummy smile, black triangle, gingival hyperpigmentation. However, many students were not aware of the various treatment modalities available for those conditions. Also, females had more knowledge and awareness as compared to males. This study emphasizes the need for more awareness about the esthetic procedures in periodontics must be created among undergraduate dental students.

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**Conflict of Interest:** None declared.

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