Original Article

ASSESSMENT OF MICRO ESTHETICS IN PATIENTS REPORTING FOR ORTHODONTIC TREATMENT

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Abstract

Background: Patients today seeking esthetic treatment are looking for enhancement of their appearance for improved quality of life. We advocate the use of the term “appearance” in conjunction with the term “esthetics" because it involves a broader assessment of the patient other than the smile. So, in orthodontic diagnosis and treatment planning we have created an approach in evaluation divided into three divisions:1 Macro Esthetics—this includes the profile, vertical facial dimensions—in other words—the face. (2)Mini Esthetics—the smile attributes—buccal corridors, smile arc, incisor display, etc. (3) Micro esthetics—the teeth and their many attributes such as contacts and connectors, embrasures, gingival shape and contour.

Aim: The aim of this is to the micro esthetics in patients reporting for orthodontic treatment in Saveetha Dental College.

Material and Methods: This is a retrospective clinical study carried out at Saveetha Dental College, Chennai. This study involves the assessment of micro esthetics in patients reporting for orthodontics treatment. The data were taken over a period of 2 years from June 2019 to February 2021. The sample/data were retrieved based on micro esthetics , crown length and width ratio, gingival embrasures, midline, tooth shape.

Results: According to the study 66% of the individuals had different crown length and crown width ratio and 34% of individuals had the same crown length and crown width ratio. Most of the patients had midline deviations.

Conclusion: Within the limits of the study most of the patients have micro esthetic assessment after orthodontic treatment.

Keywords: Micro Esthetics, innovative technology, innovative technique, orthodontics, smile line, gingiva, midline.

INTRODUCTION:

Patients today seeking esthetic treatment are looking for enhancement of their appearance for improved quality of life. We advocate the use of the term “appearance” in conjunction with the term “esthetics" because it involves a broader assessment of the patient other than the smile(1). Evaluation of the facial appearance as part of orthodontic diagnosis and treatment planning may be divided into three divisions: 1 Macro Esthetics which include the profile and vertical facial dimensions, in other words; the face.(2)Mini Esthetics which include the smile attributes namely buccal corridors, smile arc, incisor display, etc.(3)Micro Esthetics which the teeth and their many attributes such as contacts and connectors, embrasures, gingival shape and contour(2). In cosmetic dentistry, orthodontics and orthognathic surgery, if the esthetic outcome is not satisfactory to the patient, then they consider the case a failure(3). Orthodontists do not perform cosmetic dental procedures such as composite bonding, veneers, and crowns(4). However, we all recognize that in some instances when orthodontic treatment is completed, not all the smiles “look right.” Not all patients want or can afford veneers, and certainly not all of them need them(5). Orthodontists have benefited from much technological advancement in diagnosis, wires and brackets, often resulting in more efficient treatment time(6).

This gives us time for identifying micro esthetic characteristics and enhancing our outcomes to a degree we have never been able to do before.
Hence the present study was proposed to assess the micro esthetics in patients reporting for orthodontic treatment.
Our team has extensive knowledge and research experience that has translated into high quality publications(7-26).

MATERIALS AND METHODS:

This is a retrospective clinical study, carried out at Saveetha Dental College. This study involves assessment of micro esthetics in patients reporting for orthodontics treatment in Saveetha Dental College that were taken over a period of 2 year, from June 2019 to March 2021. Ethical Approval was obtained from the Institutional Review Board. The data was cross verified by 2 examiners. The data were retrieved and examined to assess the micro esthetics in patients reporting for orthodontics treatment.

INCLUSION CRITERIA:

- Age : 20-25 years
- Gender
- Crown length and width
- Gingival embrasures
- Midline
- Tooth shape
- Type of malocclusion : Class 1 malocclusion

EXCLUSION CRITERIA:

- Class 2 malocclusion
- Deep bite

A total of 546 patients were screened out of which 100 patients were selected and data were collected and assessed for age, gender, crown length and width, gingival embrasures, midline, tooth shape. The crown width and crown length were evaluated through picture and measurement was done using vernier caliper, and Collected data was tabulated in the excel sheet. The data was imported and transcribed in the statistical analyses package for social sciences version 23(SPSS) IBM corporation. Chi square test was done. Analysis was based on quantitative variables and frequencies for categorical variables. P value less than 0.05 was considered to be statistically significant.

RESULTS AND DISCUSSION:

Dental and facial esthetics have usually been determined in terms of macro and microelements(5). Macro esthetics correlate the face, lips, gingiva, and teeth. Micro esthetics include the esthetics of an individual tooth. It also involves the observation of color and form to determine attractiveness (27). According to the study, 66% of the individuals had different crown length and crown width ratio and 34% of individuals had the same crown length and crown width ratio. According to the study 55% of the individual's gingival embrasures are completely occupied by healthy interdental papilla, 32% have about 75% of the embrasure is occupied by gingiva, 10% have about 50% of the embrasure is occupied by gingiva, 3% have about 25% of the embrasure is occupied by gingiva. According to the study 60% of the individuals have midline shift and 40% have no midline shift. Similar results were seen in previous literature done by ((28)). This variation is mostly seen due to genetic factors or etiological factors(29).
Midline discrepancies are the common problems encountered that pose both diagnostic and treatment difficulties(6,29). Midline discrepancy may be either skeletal or dental. Sometimes functional shifts of the mandible may contribute to the midline discrepancy(28). Midline discrepancies can be due to one of the common etiologic factors irrespective of the type of the midline shift. Midline discrepancy is obvious from an esthetic point of view from the patient's perspective and hence demands correction (28).

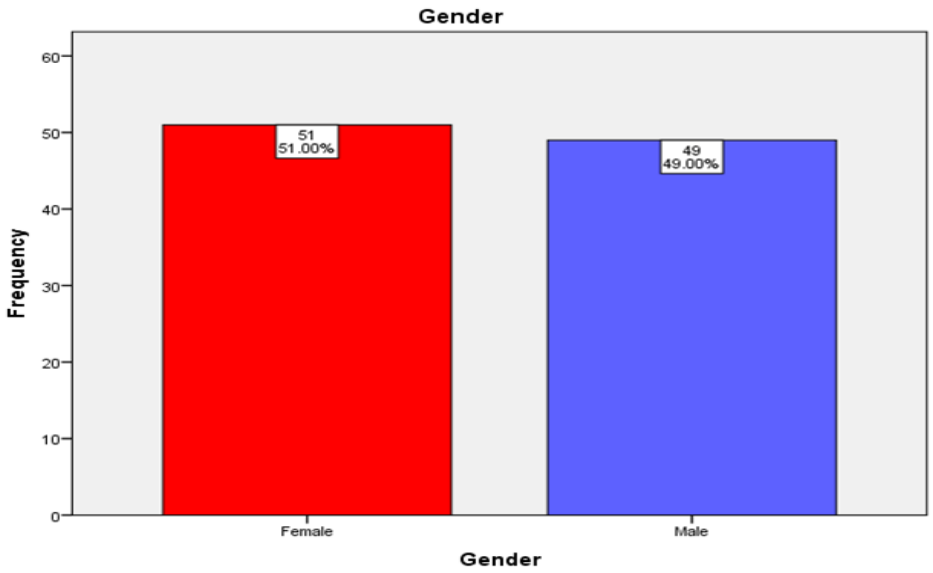

Fig 1: The bar graph shows the distribution of gender, 51% female and 49% male where red denotes female, and blue denotes male.

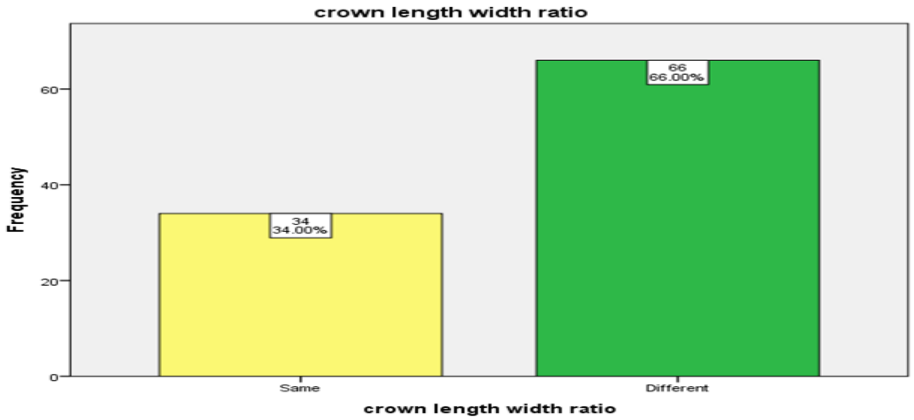

Fig 2: The bar graph shows the distribution of the crown length and crown width ratio, 34% same and 66% different crown length and width ratio, yellow represents the same ratio and green represents a different ratio.

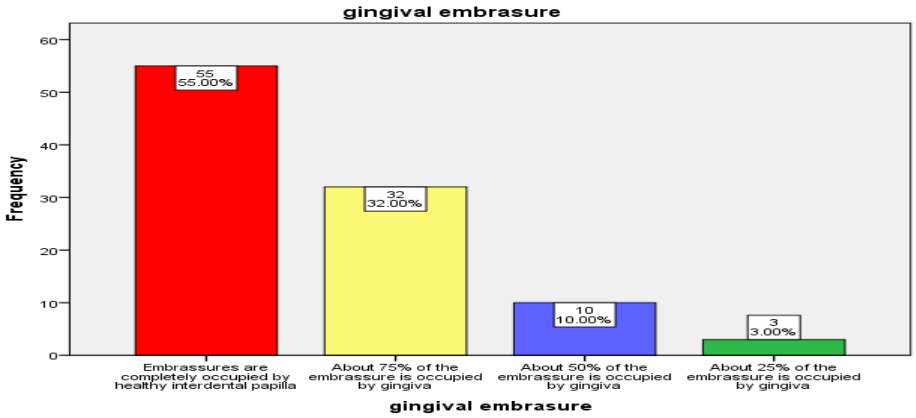

Fig 3: The bar graph shows the distribution of gingival embrasure, 55% embrasures are completely occupied by healthy interdental papilla(RED), 32% about 75% of the embrasure is occupied by gingiva(YELLOW), 10% about

50% of the embrasure is occupied by gingiva(BLUE), 3% about 75% of the embrasure is occupied by gingiva(GREEN).

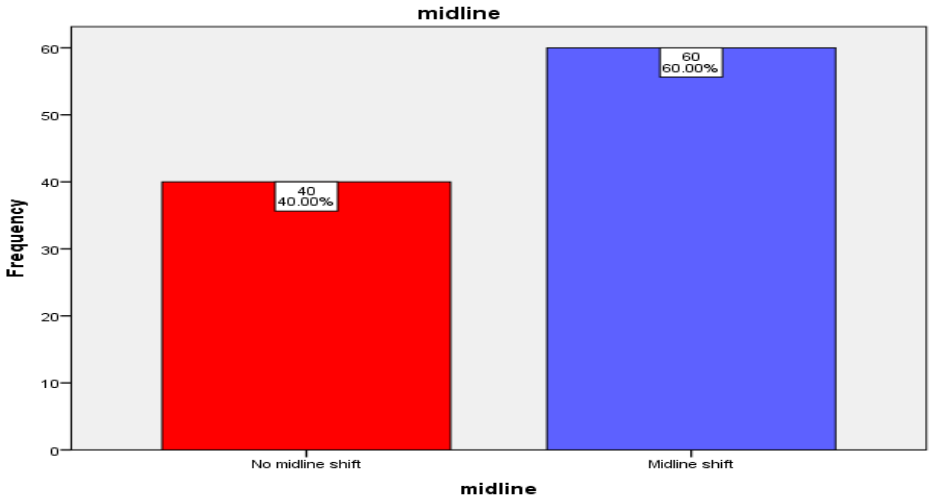

Fig 4: The bar graph shows the distribution of midline, 40% no midline shift (RED) and 60% midline shift was noted in the patients (BLUE).

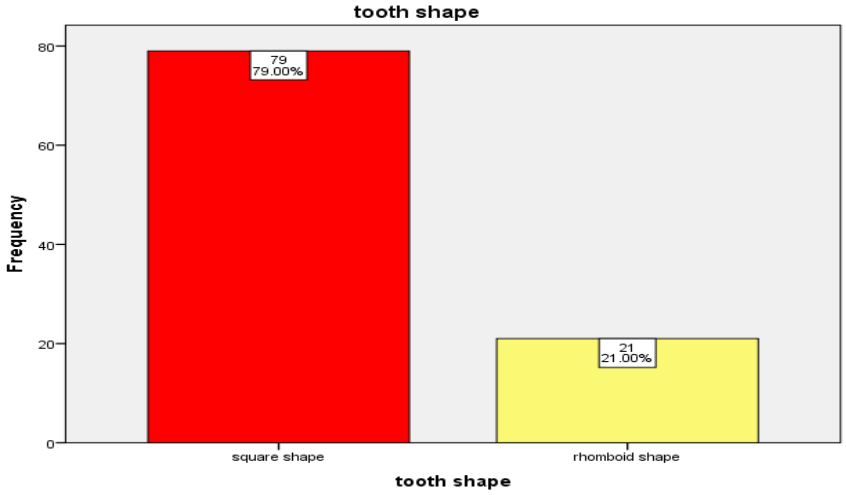

Fig 5: The bar graph shows the distribution of tooth shape, 79% square shaped and 21% rhomboid shape. Red denotes square shaped tooth and yellow denotes rhomboid shaped tooth.

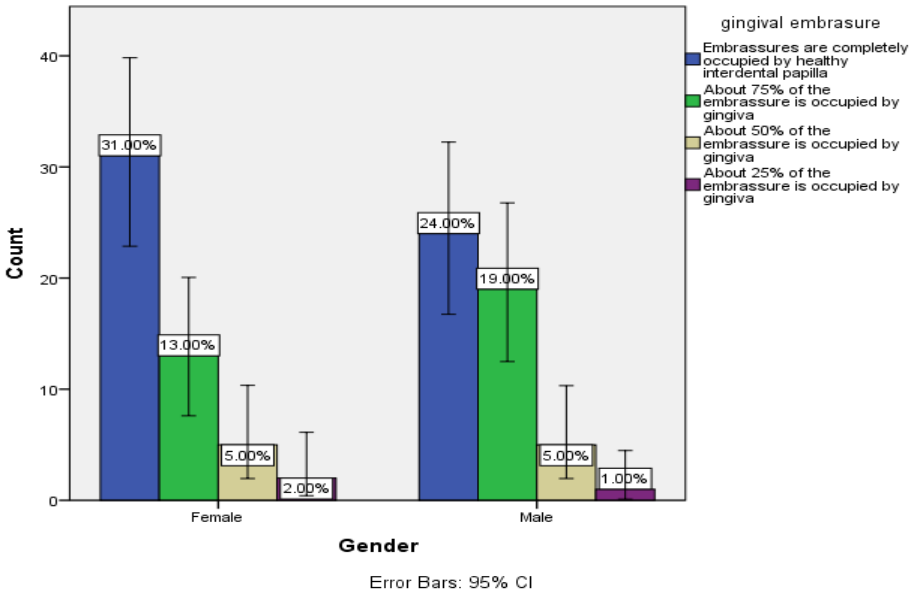

Fig 6: Error graph represents the association between the gender and gingival embrasure. X axis represents gender and Y axis represents the percentage of gingival embrasure. Chi square test was done, and the association was found to be not significant. Pearson's Chi Square value : 2.310, df : 3 ; p-value = 0.511 (> 0.05), hence statistically not significant.

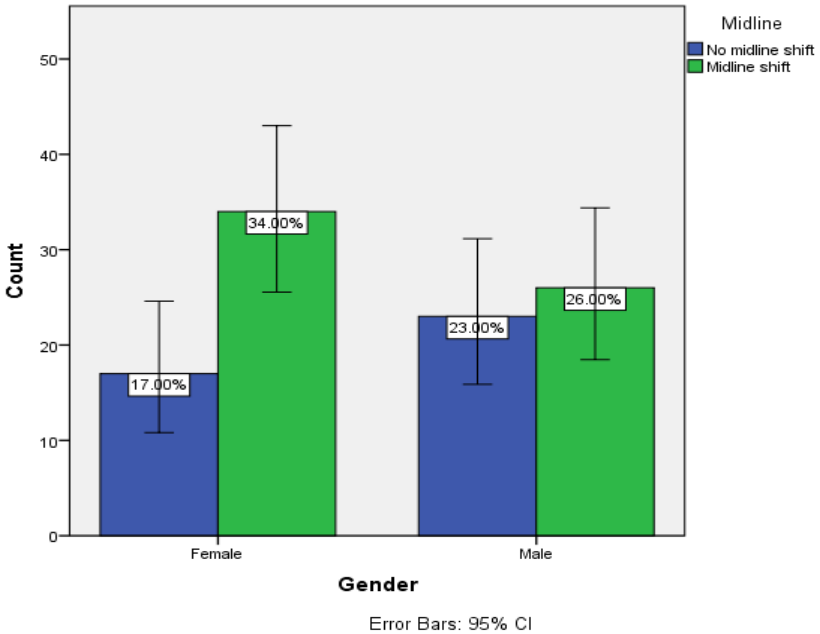

Fig 7: Error graph represents the association between the gender and gingival embrasure. X axis represents gender and Y axis represents the percentage of midline. Chi square test was done, and the association was found to be not significant. Pearson's Chi Square value : 1.927 , df : 1 ; p-value = 0.165 (> 0.05), hence statistically not significant.

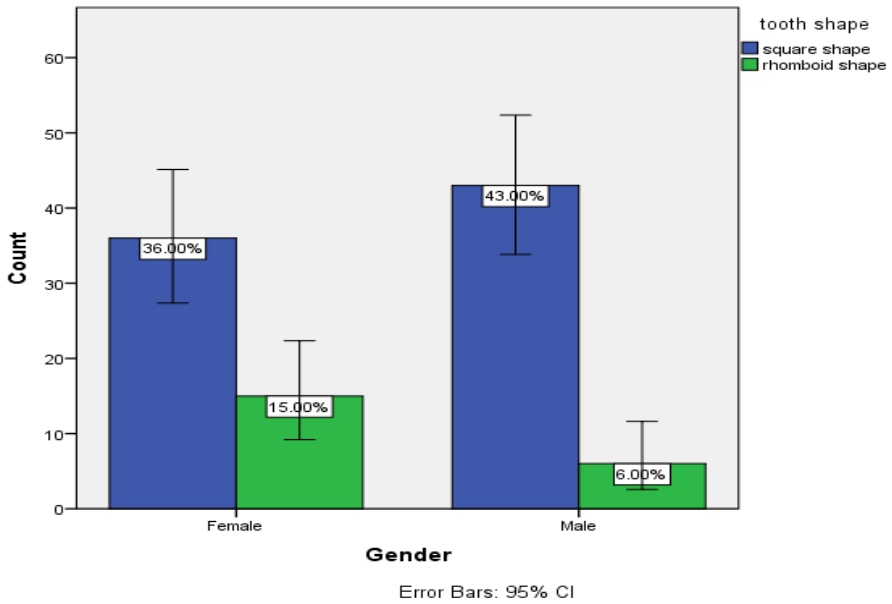

Fig 8: Error graph represents the association between the gender and gingival embrasure. X axis represents gender and Y axis represents the percentage of tooth shape. Chi square test was done, and the association was found to be significant. Pearson's Chi Square value : 4.435, df : 1 ; p-value = 0.035 (> 0.05), hence statistically significant

TABLE 1: Table shows the distribution of midline of patients.

	MIDLINE			
GENDER	No midline shift	Midline shift	TOTAL	P value
FEMALE	17	34	51	0.0165
MALE	23	26	49	
TOTAL	40	60	100	

TABLE 2: Table shows the distribution of Gingival embrasures of patients.

	Gingival embrasures					
GENDER	Embrasures are completely occupied by healthy interdental papilla	About 75% of the embrasure is occupied by gingiva	About 50% of the embrasure is occupied by gingiva	About 25% of the embrasure is occupied by gingiva	Total	P value
FEMALE	31	13	5	2	51	0.511
MALE	24	19	5	1	49	
TOTAL	55	32	10	3	100	

According to the crown length and crown width ratio male have a higher difference between the crown length and crown width ratio 34%. Esthetic dentistry can only be achieved if dentists understand the form, texture, and color of natural teeth and how the teeth relate to other facial structures. Basic knowledge of the esthetic aspects of natural dentition may contribute in a simple, yet efficient manner toward reducing difficulties in dentist vs patient relationship with regard to the patient's smile and esthetic appearance and psychosocial integration (6).

CONCLUSION:

Within the limits of the study most of the individuals have different crown length and crown width ratio and most of the individuals have midline shift. However, due to heterogeneity of the research design, the clinical relevance of the included studies, and the lack of adequate comparable studies, the applications of the current study's results should be considered with caution. On the basis of this study, there is a need for more evidence-based research in the area of smile esthetics and orthodontic treatment.

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CONFLICT OF INTEREST: None declared.

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