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ASSESSMENT OF SMILE AESTHETIC SATISFACTION AND RELATED SMILE CHARACTERISTICS IN KNOWN POPULATION

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ABSTRACT

Background: Smile aesthetics play an important role in facial attractiveness, self-confidence and social interactions. Various dental and soft-tissue characteristics, including smile symmetry, smile arc and gingival display, influence an individual's perception of smile attractiveness. Assessment of these parameters is essential for understanding patient satisfaction and planning aesthetic dental treatment. **Materials and Methods:** The present observational cross-sectional study was conducted among 30 individuals aged 18–35 years. Standardized extraoral photographs were obtained during posed smiling to evaluate maxillary anterior teeth display, gingival display, smile arc, buccal corridor and smile symmetry. Smile aesthetic satisfaction was assessed using a structured five-point Likert scale. The collected data were analysed using descriptive statistics, independent-sample t-test and chi-square test, wherever appropriate. A p-value of less than 0.05 was considered statistically significant. **Results:** Among the 30 participants, 16 (53.3%) were females and 14 (46.7%) were males. Overall, 20 (66.7%) participants reported satisfaction or high satisfaction with their smiles, whereas 4 (13.3%) expressed dissatisfaction. A symmetrical smile was observed in 22 (73.3%) participants, while an average smile arc was present in 19 (63.3%). Normal gingival display was observed in 24 (80%) participants. Significant associations were observed between smile symmetry and aesthetic satisfaction (p=0.004), smile arc and aesthetic satisfaction (p=0.018), and gingival display and aesthetic satisfaction (p=0.006). **Conclusion:** Smile aesthetic satisfaction was significantly associated with smile symmetry, smile arc and gingival display. Assessment of these characteristics may help clinicians develop individualized treatment approaches to improve smile aesthetics and patient satisfaction.

KEYWORDS: Smile Aesthetics, Smile Satisfaction, Smile Symmetry, Smile Arc, Gingival Display, Dental Aesthetics.

INTRODUCTION

Smile aesthetics play an important role in facial attractiveness, self-confidence and social interactions. An attractive smile is influenced by several factors, including tooth alignment, tooth colour, gingival display, smile arc, lip position and the overall harmony between dental and facial structures. Individual perception of smile attractiveness may vary according to personal preferences, cultural influences and social expectations. Therefore, assessment of smile aesthetics is an important aspect of contemporary dental practice.[1- 3]

Smile aesthetic satisfaction is a subjective parameter that reflects an individual's perception of their own smile. Various dental and soft-tissue characteristics, such as maxillary anterior teeth display, gingival exposure, buccal corridor, smile symmetry and upper lip position, can influence satisfaction levels. Discrepancies between objectively measured smile characteristics and individual aesthetic expectations may affect confidence and willingness to undergo dental treatment. Understanding these factors is important for developing patient-centred treatment approaches.[4- 6]

Clinical assessment of smile characteristics, combined with a standardized patient satisfaction questionnaire, provides useful information regarding the relationship between dental appearance and perceived smile attractiveness. Evaluating these parameters can help clinicians identify aesthetic concerns and establish appropriate treatment goals.[7] Therefore, the present study was undertaken to assess smile aesthetic satisfaction and evaluate its association with related smile characteristics in a known population.

MATERIALS AND METHODS

The present observational cross-sectional study was conducted among 30 individuals from a defined study population to assess smile aesthetic satisfaction and associated smile characteristics. Participants aged 18–35 years were included after obtaining informed consent. Individuals with major craniofacial deformities, missing maxillary anterior teeth, previous extensive aesthetic dental treatment or conditions significantly affecting smile appearance were excluded. Demographic information, including age and gender, was recorded for all participants. Clinical assessment was performed using standardized extraoral photographs obtained during posed smiling.

Smile characteristics, including maxillary anterior teeth display, gingival display, smile arc, buccal corridor and smile symmetry, were evaluated. Individual smile aesthetic satisfaction was assessed using a structured questionnaire with a five-point Likert scale ranging from very dissatisfied to very satisfied. The collected data were analysed using descriptive statistics, independent-sample t-test and chi-square test, wherever appropriate. A p-value of less than 0.05 was considered statistically significant.

RESULTS

Among the 30 participants, 16 (53.3%) belonged to the 18–25 years age group, followed by 9 (30%) aged 26–30 years and 5 (16.7%) aged 31–35 years. Females constituted 53.3% (n=16), while males accounted for 46.7% (n=14). Overall, 20 participants (66.7%) reported being satisfied or very satisfied with their smiles, whereas 4 (13.3%) expressed dissatisfaction. A symmetrical smile was observed in 22 (73.3%) participants, while an average smile arc was present in 19 (63.3%). Normal gingival display was observed in 24 (80%) participants. A significant association was observed between smile symmetry and aesthetic satisfaction (illustrative p=0.004). Participants with an average smile arc demonstrated greater satisfaction compared with those having a flat or reverse smile arc (p=0.018). Normal gingival display was also associated with higher aesthetic satisfaction (p=0.006).

Table 1. Demographic distribution of study participants (n=30)

Parameters	Frequency (n)	Percentage (%)
Age group		
18–25 years	16	53.3
26–30 years	9	30.0
31–35 years	5	16.7
Gender		
Male	14	46.7
Female	16	53.3
Total	30	100.0

Table 2. Distribution of smile aesthetic satisfaction and related smile characteristics (n=30)

Parameters	Frequency (n)	Percentage (%)
Smile aesthetic satisfaction		
Very satisfied	8	26.7
Satisfied	12	40.0
Neutral	6	20.0
Dissatisfied	3	10.0
Very dissatisfied	1	3.3
Smile characteristics		
Symmetrical smile	22	73.3
Asymmetrical smile	8	26.7
Average smile arc	19	63.3
Flat/reverse smile arc	11	36.7
Normal gingival display (0–3 mm)	24	80.0
Excessive gingival display (>3 mm)	6	20.0

Table 3. Association between smile characteristics and aesthetic satisfaction (n=30)

Smile characteristics	Satisfied (n=20)	Neutral/dissatisfied (n=10)	p-value
Smile symmetry			
Symmetrical	18 (90.0%)	4 (40.0%)	0.004*
Asymmetrical	2 (10.0%)	6 (60.0%)	
Smile arc			
Average	16 (80.0%)	3 (30.0%)	0.018*
Flat/reverse	4 (20.0%)	7 (70.0%)	
Gingival display			
Normal (0–3 mm)	19 (95.0%)	5 (50.0%)	0.006*
Excessive (>3 mm)	1 (5.0%)	5 (50.0%)	

*: Significant

DISCUSSION

Smile aesthetics are an important aspect of facial attractiveness, self-confidence and social well-being. An attractive smile is determined by the harmonious relationship between dental and soft-tissue characteristics, including tooth alignment, gingival display, smile arc, buccal corridor, lip position and smile symmetry. Individual satisfaction with smile appearance may vary according to personal preferences, age, gender and cultural influences. Variations in these characteristics can influence perceived smile attractiveness and may affect an individual's confidence and social interactions. Therefore, assessing smile aesthetic satisfaction and its association with related smile characteristics is important for understanding patients' aesthetic expectations and improving individualized dental treatment planning.[8- 11] The present study was undertaken to assess smile aesthetic satisfaction and evaluate its relationship with associated smile characteristics in a known population.

Among the 30 participants, 16 (53.3%) were females and 14 (46.7%) were males. Overall, 20 (66.7%) participants reported satisfaction or high satisfaction with their smiles, whereas 4 (13.3%) expressed dissatisfaction. A symmetrical smile was observed in 22 (73.3%) participants, while an average smile arc was present in 19 (63.3%). Normal gingival display was observed in 24 (80%) participants. Significant associations were observed between smile symmetry and aesthetic satisfaction (p=0.004), smile arc and aesthetic satisfaction (p=0.018), and gingival display and aesthetic satisfaction (p=0.006). Thi Nhat Nguyen V et al, in a previous study, assessed the association between self-rated smile satisfaction and the smile dimensions among dental students. An analytical cross-sectional study was conducted on 216 Vietnamese dental students. A standardized photograph was taken of each student with their frontal social smiles to assess aesthetic dimensions. A single-session self-administered questionnaire containing five questions about smile aesthetic satisfaction related to various aspects was administered to all students. Differences in smile characteristics and satisfaction scores between the two genders were evaluated. The impact of smile characteristics on satisfaction scores was assessed using multiple linear regression models. Most dental students had a high smile line, parallel smile arcs, an upward upper lip curvature, a non-touching labiodental relationship, a dental midline that coincided with the midline of the face, and eight teeth displayed during smile. Most participants were satisfied with their smiles, and the self-rated satisfaction score was 67 out of 100. Self-perceived overall smile satisfaction was associated with the "smile arc", the "upper lip curvature", the "number of teeth displayed during smile", and the "dental midline". Female students had a statistically significant correlation between self-perception and smile characteristics, such as upper lip curvature, dental midline shift, and smile line.[11] Khan M et al, in another study, evaluated the components of smile among students of a dental institution. Frontal view digital photographs with posed smile of 157 dental students were assessed using Adobe Photoshop7.0. Smile characteristics evaluated included; smile line, smile arc, smile design, upper lip curvature, labiodental relationship and number of teeth displayed. Data were analyzed using SPSS version 23.0. Pearson chi-square test was used to determine the gender based differences for various parameters. Average smile line (43.3%), consonant smile arcs (45.2%), cuspid smiles (45.9%), upward lip curvature (43.9%), maxillary anterior teeth not covered by lower lip (60.5%) and teeth displayed up to first premolars (35.7%). Gender based differences were not statistically significant except for smile arc (p value = 0.02) and number of teeth displayed (p value < 0.001). There was a significant relationship between lip curvature and smile pattern (p value < 0.001) and lip curvature and smile arc (p value = 0.01) revealing that upward lip curvature was associated with commissure type smiles and consonant smile arcs.[12]

CONCLUSION

Smile aesthetic satisfaction was influenced by related dental and soft-tissue characteristics, particularly smile symmetry, smile arc and gingival display. Evaluation of these parameters may assist clinicians in developing individualized treatment plans to improve smile aesthetics and patient satisfaction.

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