

Contribution of Smile and Lips to the Attractiveness of the Face Assessed by General Dentists and Orthodontists – A Survey Study

¹Gunti Vasundhara, Orthodontics and Dentofacial Orthopaedics, SRM Kattankulathur Dental College and Hospital, SRM Institute of Science and Technology, Chennai, India

²Akshay Tandon, Orthodontics and Dentofacial Orthopaedics, SRM Kattankulathur Dental College and Hospital, SRM Institute of Science and Technology, Chennai, India

³Deepak Chandrasekaran, Orthodontics and Dentofacial Orthopaedics, SRM Kattankulathur Dental College and Hospital, SRM Institute of Science and Technology, Chennai, India

⁴Deenadayalan Purushothaman, Department of Orthodontics, SRM Kattankulathur Dental College, SRM Institute of Science & Technology, SRM Nagar, Potheri, Kanchipuram Dt, Chennai, India

⁵Nidhi Angrish, Orthodontics and Dentofacial Orthopaedics, SRM Kattankulathur Dental College and Hospital, SRM Institute of Science and Technology, Chennai, India

⁶Reshma Mohan, Orthodontics and Dentofacial Orthopaedics, SRM Kattankulathur Dental College and Hospital, SRM Institute of Science and Technology, Chennai, India

⁷Praveen Katepogu, Orthodontics and Dentofacial Orthopedics, SRM Kattankulathur Dental College and Hospital, SRM Institute of Science and Technology, Chennai, India

Corresponding Author: Praveen Katepogu, Orthodontics and Dentofacial Orthopedics, SRM Kattankulathur Dental College and Hospital, SRM Institute of Science and Technology, Chennai, India

Citation of this Article: Gunti Vasundhara, Akshay Tandon, Deepak Chandrasekaran, Deenadayalan Purushothaman, Nidhi Angrish, Reshma Mohan, Praveen Katepogu, “Contribution of Smile and Lips to the Attractiveness of the Face Assessed by General Dentists and Orthodontists – A Survey Study”, IJDSIR- January – 2026, Volume – 9, Issue – 1, P. No. 47 – 53.

Copyright: © 2026, Praveen Katepogu, et al. This is an open access journal and article distributed under the terms of the creative common’s attribution non-commercial License. Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given, and the new creations are licensed under the identical terms.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background and purpose: One major reason for getting orthodontic treatment is to improve one's appearance. The relationship between smile and facial components is not fully understood. The goal was to investigate the

relationship between smile and lips as assessed by general dentists as well as orthodontists.

Material and Methodology: 60 adult subject patients were assessed for their attractiveness using smile and lip photographs taken pre-orthodontic treatment using the Visual Analogue Scale by 58 general dentists and 58

orthodontists. The statistical tests performed were the two-sample 't'-test, Pearson correlation coefficient, and stepwise regression.

Result: Orthodontists found a positive link between the lips ($r = 0.585$) and smile ($r = 0.671$) regarding facial beauty. Lips accounted for 0.8% and smile for 45.1% of the difference in face attractiveness. Nonetheless, a noteworthy association was noted by general dentists in evaluating facial beauty between the lips ($r = 0.789$) and the grin ($r = 0.565$). A smile contributed 1.4% of the difference in face attractiveness, while the lips accounted for 62.2%.

Conclusion: For general dentists, the smile contributed to 49% of the attractiveness of the smiling face, and the lips for 22%. For orthodontists, 69% of the facial attractiveness could be attributed to a smile. This study provides evidence that orthodontists have a better perception of the contribution of smiles and lips to facial attractiveness compared to general dentists. These findings have implications that contribute the practice of dentistry and suggest that orthodontists should play a more active role in the treatment of patients who are concerned about the appearance of their smiles.

Categories: Medical Education, Public Health, Dentistry

Keywords: attractiveness, face, lips, orthodontics, photography, smile

Introduction

The smile is an important part of facial attractiveness, and the lips play a prime role in shaping the smile. Studies have shown that people with attractive smiles are rated more favourably in terms of intelligence, competence, and trustworthiness. Malocclusions exert influence on the grading of personality, IQ, and attractiveness, in addition to their behavioural intentions to socialize¹. General dentists and orthodontists are uniquely qualified to assess the contribution of smiles

and lips to facial attractiveness. They have the training and experience to evaluate the various factors that contribute to a beautiful smile, such as tooth alignment, gum health, and lip shape.

The look of the lower third of the face—from the base of the nose to the soft tissue point of the chin often dictates whether orthodontic or surgical correction is necessary. To diagnose and treat dentofacial abnormalities, this field is therefore essential². A considerable amount of research on the function of physical beauty has demonstrated that physical attractiveness is a favorable trait in a variety of spheres of life. Physical appearance tends to elicit more pleasant emotions and good judgments from others, making it possible for the beautiful to have more potential to succeed in a variety of quests. The face is the most important factor in physical beauty. A beautiful face may make a person look younger, healthier, more appealing, and more successful. Strength, symmetry, and balance should be the foundation of a beautiful face. Aesthetic dentistry routinely focuses on addressing the appealing qualities of the soft tissues and teeth. This is enclosed in the 'aesthetic zone' of the dental hard and soft tissues, surrounded by the lips that are visible during the act of smiling³. However, a smile is a dynamic, challenging expression that include various parts of the face that go beyond the 'aesthetic zone.' One important part is the lip, which could be considered the frame of the smile. Many facial muscles join together to form a smile. They help to reveal the smile curtain by disclosing the teeth and periodontal structures because these muscles animate the lips. Recently, dentists have been using facial-injectable treatments such as dermal fillers and botulinum toxin to enhance the lips.

In addition to teeth, lip treatment procedures also add value during the aesthetic rehabilitation of a patient. The

overall facial attractiveness cannot be deduced by a single factor.

Comprehending the correlation between the total appeal of the face and every component may help in evaluating the constraints of orthodontics regarding the treatment of soft tissues and teeth.

Earlier studies have summarized the following: i) Physical attractiveness is mostly determined by the face; ii) all of the facial features may be connected to facial attractiveness; and iii) the assessment of facial attractiveness varies between laypeople and dental professionals^{4,5}. In a prior study, twelve raters, unrelated to dentistry, used three-quarter-view facial images to assess the facial features that contributed to overall facial attractiveness and assessed them with a 9-point Likertscale⁴. In an earlier study, eight laypeople evaluated the association between facial components and attractiveness using frontal smiling images⁶. However, the current study aims to compare the opinions of orthodontists and general dentists in assessing the correlation between facial components and facial attractiveness.

Materials and Methods

Sample Collection

The data for the study were collected from 60 consecutive adult subjects (30 males and 30 females) between 18 and 25 years of age, who had reported to the Department of Orthodontics, SRM Kattankulathur Dental Hospital, seeking orthodontic consultation. The inclusion criteria included no prior orthodontic treatment, no missing anterior teeth, no facial asymmetry, and healthy volunteers. The exclusion criteria were patients undergoing orthodontic treatment, missing anterior teeth, and dentofacial deformities.

Photo Taking

Informed consent was signed by the subjects before the study's execution. The participant was captured in natural head posture, standing calmly and gazing straight ahead against a neutral background for the frontal photo of their joyful face. The physician would nudge the subject's head in the right direction if it was position ednoticeably up or down. The patient needed to grin in a forced manner. The orthodontist held the camera at the patient's head height and at a normal distance of 1.5 meters. A Canon 500T digital single-lens reflex camera was one of the photography equipment pieces.

Various facial features, such as the lips and smile, were preserved from the source face photo using Adobe Photoshop version 7. After that, a dark backdrop was used to arrange each image in a powerpoint presentation while preserving its proportions and relative size. Ultimately, two macro-enabled PowerPoint presentations were created from 120 images, 60 of which featured smiles and 60 of which featured lips.

Visual Analogue Scale

A continuous line set at 100 mm with 0 on the left (extremely unpleasant) and 10 on the right (very pleasant) was used to develop the visual analogue scale (VAS). The raters were directed to record, using a suitable point on the vertical line, their evaluation of each element in the facial environment. To determine the final

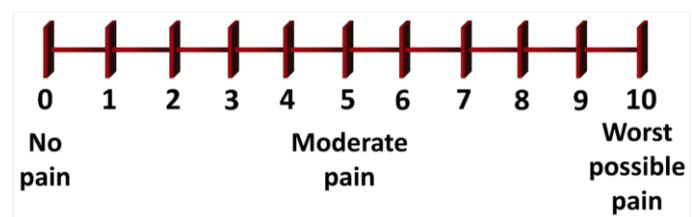


Figure 1: Visual analogue scale (VAS)

Aesthetic assessment, all scores were measured from the rater's scribe to the left anchor end to the closest millimeter.

The photographs were then evaluated by 58 general dentists and 58 orthodontists. Every rater received the PowerPoint slides in the same order and saw them on a laptop. The related slides were displayed and the VAS was used to assign numbers to them. A booklet including one visual VAS on each page was distributed to each rater, who was instructed to complete it at their own pace. The raters assessed the lips' and smile's aesthetic appeal. Twice, at least ten days apart, the PowerPoint presentation with 120 images of sixty patients was assessed. For instance, only the grin was assessed the first time, and only the lips were assessed the second time. Only one face component was assessed at a time to lessen the influence of other facial components on the score, allowing the raters to concentrate on that one area.

Results

The intraclass correlation coefficient (ICC) values for the VAS scores showed good intra-observer agreement, ranging from 0.72 to 0.89. Table 1 displays descriptive statistics for the sample. The smile (r Z 0.671) and lips (r Z 0.585) were found to have a strong link with facial beauty when evaluated by orthodontists. General dentists evaluated the relationship between appearance and the smile (r Z 0.565) and lips (r Z 0.789) and discovered a substantial association (Table 2). According to orthodontists' assessments, the lips accounted for 0.8% of the variation in facial beauty, whereas the smile accounted for 45.1%. According to general dentists' assessments, the smile accounted for 1.4% of the difference in facial beauty, while the lips accounted for 62.2%. (Table 3).

Table 1: Descriptive statistics for attractiveness scores of the smile and lips (mean ± SD)

Facial feature	Orthodontists	General dentists	P value
Lips	4.79 ± 2.00	5.41 ± 2.02	< 0.001
Smile	4.97 ± 2.27	5.62 ± 2.27	< 0.001

Table 2: Pearson correlation results between facial attractiveness and the smiles and lips

Facial feature	Orthodontists		General dentists	
	Pearson r	P value	Pearson r	P value
Lips	0.585	< 0.001	0.789	< 0.001
smiles	0.671	< 0.001	0.565	< 0.001

Table 3: Results of the stepwise correlation

	Results of the stepwise correlation.			
	r	r ² partial	r ² cumulative	P
Orthodontists				
Smiles	0.671	0.451	0.451	< 0.001
Lips	0.776	+0.008	0.602	0.002
General dentists				
Lips	0.789	0.622	0.622	< 0.001
Smiles	0.847	+0.014	0.718	< 0.001

Discussion

In order to better communicate with patients and forecast the outcome of orthodontic treatment, general dentists and orthodontists will find it useful to review the current study on the relationship between smile, lips, and facial attractiveness. Earlier studies have summarized the following: i) Physical attractiveness is mostly determined by the face ; ii) all of the facial features may be credited to facial attractiveness ; and iii) the assessment of facial attractiveness varies between laypeople and dental professional ^{4,5}. To evaluate the facial attractiveness the most common and effective way is Subjective facial analysis ⁵⁻⁷. The VAS is a practical, reliable and simple estimation method most commonly used in related research ⁸⁻¹⁰. No facial features were masked during the evaluation of each facial component. Nevertheless, only one face component was evaluated at a time in the current investigation. Hence, the raters were able to focus on a single area of the face to lessen the impact of other facial features on the score.

The findings of the present study suggest that orthodontists have a better perception of the contribution of smiles and lips to facial attractiveness compared to general dentists. This is likely due to the fact that orthodontists receive specialised training in facial

aesthetics and are more familiar with the specific features that contribute to an attractive smile. Orthodontists are trained to assess the alignment of teeth, the shape of the lips, and the overall harmony of the facial features¹¹⁻¹³. They are also able to identify subtle imperfections that may not be apparent to the untrained eye. As a result, orthodontists are better equipped to evaluate the overall attractiveness of a smile.

In contrast, general dentists may not have the same level of training in facial aesthetics. They may be more focused on the functional aspects of the teeth and mouth and may not be as attuned to the subtle features that contribute to an attractive smile^{14,15}. The findings of the present study have several implications for the practice of dentistry. First, they suggest that orthodontists should play a more active role in the treatment of patients who are concerned about the appearance of their smiles. Second, they suggest that general dentists should receive more training in facial aesthetics so that they can better understand the contribution of smiles and lips to facial attractiveness.

The findings of the current research provide compelling evidence that orthodontists possess a superior ability to perceive and evaluate the contribution of smiles and lips to facial attractiveness compared to general dentists¹⁶⁻¹⁹. This enhanced perception can be attributed to the specialised training and expertise orthodontists receive in facial aesthetics, enabling them to meticulously assess the intricate interplay of dental alignment, lip morphology, and overall facial harmony. Orthodontists' in-depth knowledge of facial anatomy and their ability to identify subtle nuances in smile features empower them to render comprehensive assessments of facial attractiveness^{20,21}. Their expertise extends beyond the mere evaluation of teeth alignment to encompass a

holistic understanding of how smiles and lips influence the overall aesthetic appeal of the face.

In contrast, general dentists, while possessing a fundamental understanding of oral anatomy and dental care, may not have the same level of exposure to the intricacies of facial aesthetics. Their focus primarily lies in the functional aspects of dentistry, potentially limiting their ability to appreciate the subtle details that contribute to an attractive smile.

The findings of this study underscore the importance of orthodontist's involvement in the treatment of patients seeking to enhance the attractiveness of their smiles. Orthodontists specialized expertise equips them to provide comprehensive smile design solutions that not only address functional concerns but also optimize facial aesthetics. Furthermore, the study highlights the need for enhanced training in facial aesthetics among general dentists. Equipping general dentists with a deeper understanding of facial aesthetics would enable them to better appreciate the significance of smiles and lips in facial attractiveness, potentially leading to more informed treatment recommendations.

Conclusions

In conclusion, this study firmly establishes the superior perception of orthodontists in evaluating the contribution of smiles and lips to facial attractiveness. Their specialized training and expertise empower them to provide comprehensive smile design solutions that enhance both function and aesthetics. This study provides evidence that orthodontists have a better perception of the contribution of smiles and lips to facial attractiveness compared to general dentists. These findings have implications for the practice of dentistry and suggest that orthodontists should play a more active role in the treatment of patients who are concerned about the appearance of their smiles.

References

1. Olsen JA, Inglehart MR: Malocclusions and perceptions of attractiveness, intelligence, and personality, and behavioral intentions. *Am J Orthod Dentofacial Orthop.* 2011, 140:669-679.
2. Lauria A, Rodrigues DC, de Medeiros RC, et al.: Perception of oral and maxillofacial surgeons, orthodontists and laypersons in relation to the harmony of the smile. *J Craniomaxillofac Surg.* 2014, 42:1664-1668.
3. Chan MYS, Mehta SB, Banerji S: An evaluation of the influence of teeth and the labial soft tissues on the perceived aesthetics of a smile. *Br Dent J.* 2017, 223:272-278.
4. Tatarunaite E, Playle R, Hood K, et al.: Facial attractiveness: a longitudinal study. *Am J Orthod Dentofacial Orthop.* 2005, 127:676-82.
5. Ren H, Chen X, Zhang Y: Correlation between facial attractiveness and facial components assessed by laypersons and orthodontists. *J Dent Sci.* 2021, 16:431-436
6. Godinho J, Gonçalves RP, Jardim L: Contribution of facial components to the attractiveness of the smiling face in male and female patients: A cross-sectional correlation study. *Am J Orthod Dentofacial Orthop.* 2020, 157:98-104.
7. Yu X-N, Bai D, Feng X, et al.: Correlation Between Cephalometric Measures and End-of-Treatment Facial Attractiveness. *J Craniofac Surg.* 2016, 27: 405-409.10.1097/SCS.0000000000002444
8. Flores-Mir C, Silva E, Barriga MI, et al.: Lay person's perception of smile aesthetics in dental and facial views. *J Orthod.* 2004, 31:204-9.10.1179/146531204225022416
9. Phillips C, Tulloch C, Dann C: Rating of facial attractiveness. *Community Dent Oral Epidemiol.* 1992, 20:214-220.
10. Kiekens RMA, Maltha JC, van 't Hof MA, et al.: A measuring system for facial aesthetics in Caucasian adolescents: reproducibility and validity. *Eur J Orthod.* 2005,27:579-584.
11. Bharathan K, Annamalai I, Anbarasu P, et al.: Photographic assessment of facial components in facial esthetics as perceived by orthodontists, artists, and photographers - An In vivo study. *J Int Clin Dent Res Organ.* 2022, 14:141-149.
12. Kau CH, Christou T, Sharma S: Contemporary Smile Design: An Orthodontic Perspective . *Dent Clin North Am.* 2022, 66:459-475.
13. Ntovas P, Karkazi F, Ozbilen E-O, et al.: The impact of dental midline angulation towards the facial flow curve on the esthetics of an asymmetric face: Perspective of laypeople and orthodontists. *J Esthet Restor Dent.* 2024, 36:778-784.10.1111/jerd.13177
14. Al-Saleh SA, Al-Shammery DA, Al-Shehri NA, et al.: Awareness of Dental Esthetic Standards Among Dental Students and Professionals. *Clin Cosmet Investig Dent.* 2019, 11:373-382.
15. Batwa W: The Influence of the Smile on the Perceived Facial Type Esthetics .*Biomed Res Int.* 2018, 2018:3562916.
16. Al Taki A, Khalesi M, Shagmani M, et al.: Perceptions of Altered Smile Esthetics: A Comparative Evaluation in Orthodontists, Dentists, and Laypersons. *IntJ Dent.* 2016, 2016:7815274.
17. McCormack K: Perception of lip attractiveness: a survey of orthodontists, general dentists, and laypersons, <https://archive.hshsl.umaryland.edu/handle/10713/20664> (2023).

18. Garrett-McCormack K: Perception of Lip Attractiveness: A Survey of Orthodontists, General Dentists, and Laypersons. University of Maryland, Baltimore.
19. Dindaroğlu F, Ertan Erdiñç AM, Doğan S: Perception of Smile Esthetics by Orthodontists and Laypersons: Full Face and A Localized View of The Social and Spontaneous Smiles. Turk J Orthod. 2016, 29:59-68.10.5152/TurkJOrthod.2016.0013
20. Pasukdee P, Cheng JH-C, Chen D-S: Smile preferences of orthodontists, general dentists, patients, and the general public in three-quarter and lateral views. Am J Orthod Dentofacial Orthop. 2021, 159:311-320.
21. Sadrhaghighi H, Zarghami A, Sadrhaghighi S, et al.: Esthetic perception of smile components by orthodontists, general dentists, dental students, artists, and laypersons. J Investig Clin Dent; 8. Epub ahead of print November. 2017, 10.1111/jicd.12235