Academia Journal of Medicine
Year 2025, Volume-8, Issue- 2 (Jul-Dec)

Correlation Between Tooth Form and Personality Traits Using the Visagism Concept: A Cross-Sectional Study.

[1]Dr.Sushma Buruguru,[2]Dr.Pilli Bhavana,[3]Dr.B.Chittaranjan,[4]Dr.Jisa Ann Alex,[5]Dr.Priyanka Patra ,[6]Dr.K.Deepa Rani .

[1,2] Post graduate student ,Department of Maxillofacial prosthodontics and implantology ,Malla Reddy Dental College for Women.

[3,6]Department of Maxillofacial prosthodontics and implantology ,Malla Reddy Dental College for Women

ARTICLE INFO

Keywords: Aesthetics, Discrimination, Facial harmony, Smile, Personality Traits, Tooth Shape, Visagism

ABSTRACT

Aim: The Visagism concept enables dental clinicians to design restorations that go beyond conventional aesthetics by incorporating psychosocial aspects such as the patient's emotions, identity, behavior, and self-esteem. This holistic approach aims to align dental restorations with an individual's personality. So the study aims to evaluate the potential correlation between smile patterns and personality traits based on the principles of Visagism.

MaterialsandMethods:A cross-sectional study was conducted among 100 participants aged 18–30 years affiliated with a dental college. Temperaments were assessed using a validated self-reported questionnaire. Standardized frontal-view photographs in centric occlusion were taken to determine tooth shapes. The temperaments identified via questionnaire responses were compared with those interpreted through tooth morphology based on Visagism principles. Statistical analysis was performed using IBM SPSS software version 22.

Results: Among the participants, the melancholic temperament was predominant, accounting for 47%. A statistically significant correlation was observed between tooth form and temperament ($p < 0.01$), indicating that specific personality traits were reflected in dental morphology.

Conclusion: The study supports the concept that facial and dental characteristics are influenced by personality traits. Incorporating Visagism principles in aesthetic dental treatment can aid in selecting tooth forms that harmonize with a patient's personality, thereby enhancing treatment satisfaction.**Clinical Significance:** Integrating Visagism into clinical practice promotes a multidisciplinary and patient-centered approach, enabling dental professionals to create restorations that resonate with the patient's psychological and emotional profile, ultimately improving esthetic and functional outcomes.

Introduction:

Dentistry has increasingly embraced a holistic model that goes beyond functional rehabilitation to include aesthetic enhancement and personal identity expression. One of the most innovative developments in this context is the application of Visagism—a design philosophy that blends artistic insight with clinical science to create smiles that

Corresponding author:

Email id: pillibhavana933@gmail.com

reflect not only physical attributes but also emotional and psychological dimensions.

Originating from the French word visage, meaning "face," Visagism underscores the importance of facial symmetry, harmony, and balance in dental aesthetics.[1]It considers a wide range of individual characteristics—such as facial proportions, personality traits, and lifestyle habits—when designing dental restorations. This personalized approach aims to align a patient's smile with their inner identity, contributing to improved self-image, emotional well-being, and social confidence.[2]

Although the concept of Visagism has been introduced in aesthetic dentistry, its practical application remains underexplored, particularly in the Indian context. Limited empirical data exist on how tooth morphology correlates with personality types using this framework. Understanding these associations can aid clinicians in choosing tooth shapes that resonate with the patient's identity, ultimately enhancing patient satisfaction and psychological outcomes. Hence, this study attempts to bridge this gap by assessing the correlation between personality traits and smile patterns based on the principles of Visagism. The foundation of Visagism in dentistry was influenced by the Dentogenic Concept introduced by Frush and Fisher, which advocated for customizing tooth shapes based on the patient's age, gender, and personality.[3,4] According to this concept, personality is the most defining yet elusive trait to capture in dental aesthetics. Building upon this, Morley and Eubank emphasized the role of facial and smile analysis in achieving aesthetically harmonious results,[5] while Belser and Magne advanced the concept of individualized smile design through comprehensive digital planning.[6]

Recent studies have proposed the use of Digital Smile Design (DSD) to integrate visual, psychological, and anatomical parameters into a cohesive treatment plan. Visagism offers a framework that enhances this process by associating specific dental features with emotional and behavioral characteristics. However, only a few studies have systematically examined the reliability of these correlations, particularly through clinical evaluation.[7,8,9,10] The study aims to evaluate the correlation between personality traits and smile patterns using the principles of Visagism in a young adult population.

METHODOLOGY:

After obtaining approval from the Institutional Ethical Committee, a descriptive cross-sectional study was carried out among final-year dental students and interns in the Department of Prosthodontics. Participants were eligible if they were between 18 and 30 years old and had naturally aligned maxillary anterior teeth without prior orthodontic or cosmetic dental treatment in that region. Individuals with incisal wear, fractures, gingival enlargement affecting the upper front teeth, restorations such as veneers, history of jaw surgery, developmental craniofacial defects, or anterior dental anomalies were excluded. The required sample size was estimated using the formula for a single population proportion, considering a 60% prevalence of the most common temperament type reported in previous literature, with a 95% confidence level and a 10% margin of error. This calculation yielded a sample size of 92, which was increased to 100 to compensate for possible dropouts or incomplete responses. Data were collected using a previously validated, self-administered questionnaire (Appendix 1) comprising 50 yes/no/doubtful questions exploring behavioral tendencies related to emotional, cognitive, and social traits. Each question corresponded to one or more classical temperament types: choleric, sanguine, melancholic, or phlegmatic. The temperament with the most affirmative responses was identified as the dominant type. In instances where responses were evenly distributed, a mixed temperament was recorded, though the leading type was noted for analysis. Clinical evaluation was performed with participants seated upright on a dental chair. Frontal-view photographs of the maxillary anterior teeth in centric occlusion were captured using a Canon digital camera under natural lighting, with the aid of a cheek retractor. The images were processed using Adobe Photoshop to enhance the tooth outlines, and each participant's tooth form was classified (Fig1) according to M.M. House's temperament-based system as triangular (choleric), oval (sanguine), tapering (melancholic), or square (phlegmatic).[11] The dominant psychological temperament and corresponding tooth shape were compared using cross-tabulation.

Results:

Statistical analysis was carried out using IBM SPSS Statistics for Windows, Version 22.0 (Armonk, NY: IBM Corp.). The total number of subjects in each temperament and tooth form category was recorded. Descriptive statistics were used to report frequencies and proportions, and Cohen's Kappa coefficient was employed to evaluate the agreement between questionnaire-based temperament classification and the photographic tooth form analysis. A p-value of less than 0.05 was considered statistically significant.

Based on the questionnaire responses, melancholic temperament was found to be the most prevalent among participants, accounting for 47% of the study population. This was followed by sanguine (25%), phlegmatic (15%), and choleric (13%) (Table1). The photographic analysis of

maxillary anterior tooth morphology yielded similar trends. 43% of the participants were found to have oval-shaped teeth corresponding to the melancholic category, 19% had triangular (sanguine), 15% had square (phlegmatic), and 23% had rectangular (choleric) tooth forms.

To evaluate the degree of agreement between the two methods of temperament classification—questionnaire versus photographic analysis—Cohen's Kappa statistical test was performed. As illustrated in Table 2, the Kappa value was 0.64, with a standard error of 0.07. The 95% confidence interval ranged from 0.50 to 0.79, and the result was statistically significant with a p-value of less than 0.001. According to standard interpretation guidelines, a Kappa value between 0.61 and 0.80 indicates substantial agreement. Thus, the observed Kappa value suggests a strong concordance between the subjective assessment of temperament and the clinical evaluation of tooth form.

Graph 1 presents a visual comparison of the photographic study and questionnaire-based temperament classifications. The graph highlights that the distributions of temperament types from both methods were aligned closely, with the highest concordance observed in the melancholic and sanguine categories. This supports the hypothesis that individuals' tooth forms often reflect underlying personality traits as conceptualized in the Visagism philosophy.

DISCUSSION:

Visagism is a contemporary concept in esthetic dentistry that seeks to establish harmony between facial features, dental structures, and an individual's emotional and psychological characteristics. Its foundation lies in the belief that dental restorations—particularly those involved in smile design—should go beyond achieving cosmetic enhancement; they should also reflect the unique identity and personality of the patient. By applying principles derived from visual arts, Visagism introduces a humanistic and personalized dimension to dental care, integrating emotional, psychological, and physical aesthetics.[2]

The psychological component of smile design is often underappreciated. A growing body of literature emphasizes that a smile significantly influences interpersonal communication and self-perception. A smile not only communicates emotions such as joy and confidence but also plays a vital role in forming first impressions. Studies have shown that individuals with a pleasing smile are often perceived as more sociable, trustworthy, and competent.[12,13] As such, incorporating psychological insights into dental planning enhances patient satisfaction and promotes holistic care.

This aligns with the concept of Visagismile, a term introduced by Paolucci et al.,[2] which emphasizes the emotional resonance of a smile and its alignment with a patient's inner temperament. Their approach involved interpreting facial morphology and psychological profiles to develop dental restorations that truly resonate with the individual. They argued that facial and dental aesthetics should be in congruence with a patient's self-image, creating an outcome that is not only visually appealing but also emotionally empowering.

The classical temperaments—Choleric, Sanguine, Melancholic, and Phlegmatic—have long been associated with distinct emotional and behavioral traits. When these temperaments are correlated with facial and dental features, it opens up new possibilities for personalized smile design. The present study identified a significant correlation between dominant temperament types and tooth morphology, reinforcing the relevance of Visagism in modern dental practice.

In our study, melancholic temperament was the most prevalent, followed by sanguine, phlegmatic, and choleric. The corresponding tooth forms—oval for melancholic, triangular for sanguine, square for phlegmatic, and rectangular for choleric—were identified through clinical photographic analysis.[2] A substantial agreement between questionnaire-based temperament classification and tooth morphology was confirmed through Cohen's Kappa test, indicating a consistent and statistically significant correlation. This substantiates the idea that psychological traits may be reflected in dental morphology, particularly in the anterior maxillary region.

Several researchers have echoed similar findings. Sharma et al. concluded that personality traits could be mapped to specific smile characteristics, particularly in the shape and alignment of anterior teeth.[14] Their study found a noteworthy relationship between personality assessment tools and smile parameters, supporting the underlying principle of Visagism.

In another study, Rambabu et al. explored the correlation between mental temperaments and dental esthetics. Their analysis, which considered tooth form, facial symmetry,

and interproximal contact areas, highlighted the need for emotional congruence in dental restorations. They proposed that a thorough understanding of the patient's personality could guide the clinician in selecting appropriate shapes and forms for anterior restorations, ultimately improving satisfaction and patient confidence.[7]

Recent research examining the relationship between smile esthetics and personality traits through the concept of Visagism has yielded mixed results. While some studies support the idea that facial and dental forms may align with individual temperaments, such as the work by Jain et al.,[15] others like Tanikonda et al.[7] found no significant agreement between questionnaire-derived and photographically assessed temperaments, questioning its reliability. Akmansoy et al. highlighted that although natural tooth forms may show some compatibility with Visagism, its subjective interpretation and lack of standardization limit its clinical utility.[16] Iliev advocated for personalized digital smile design (DSD) to enhance predictability and esthetic outcomes, emphasizing the integration of psychological attributes into planning. [17]Similarly, Vasantha Kumar M et al. demonstrated the effectiveness of digital techniques in selecting anterior tooth forms for edentulous patients, reinforcing the value of individualized approaches.[18] Overall, while Visagism remains a conceptually appealing framework, its routine use in clinical dentistry requires further evidence and refinement. Despite these critiques, the present findings underscore the potential value of integrating personality-based assessments into smile design protocols. By acknowledging psychological profiles, dentists can offer restorations that resonate more deeply with the patient's identity. This may be particularly useful in cases of full-mouth rehabilitation, anterior tooth replacement, or cosmetic procedures where subjective satisfaction plays a crucial role in perceived treatment success.

The findings also call for further research using larger sample sizes and multi-centric approaches. Standardizing the questionnaire tools and photographic analysis methods would enhance the reliability and reproducibility of Visagism-based approaches in clinical settings. Moreover, interdisciplinary collaborations involving psychologists, artists, and dental professionals may yield more robust frameworks for implementing Visagism in practice.

Conclusion:

Facial characterization is the result of a complex interplay of features, often influenced by the predominance of specific personality traits. In the realm of dentistry, recognizing these subtle psychological and morphological associations can play a vital role in selecting appropriate tooth forms and designing a smile that aligns naturally with an individual's identity.

A smile is often seen as a window to one's inner self, while personality forms the framework upon which it is built. Visagism bridges these elements by integrating emotional expression with aesthetic principles, allowing clinicians to create smiles that not only enhance physical appearance but also reflect the patient's unique personality. This personalized approach underscores the potential of Visagism to elevate both the artistic and humanistic dimensions of dental care.

Clinical Significance:

Integrating psychological attributes with dental morphology offers a personalized approach to smile design. The concept of Visagism enables clinicians to tailor dental restorations that align with a patient's personality, thereby enhancing both esthetic appeal and emotional satisfaction. This method supports improved patient engagement, strengthens the dentist–patient relationship, and promotes treatment outcomes that are not only visually pleasing but also psychologically affirming.

References:

Archana K S et al., Visagism: An Essential Concept in Esthetic Dentistry, RJDS 2023;15(3):31-37. DOI:10.26463/rjds.15_3_18

Paolucci B, Calamita M, Coachman C, Gürel G, Shayder A, Hallawell P. Visagism: The art of dental composition. Quintessence Dent Technol. 2012;35:187–200.

Frush JP, Fisher RD. Introduction to dentogenic restorations. J Prosthet Dent 1955; 5:586-95. Doi:10.1016/0022-3913(55)90084-6.

Frush JP, Fisher RD. How dentogenic restorations interpret the sex factor. J Prosthet Dent 1956; 6:160-72.Doi:10.1016/0022-3913(56)90110-X.

Morley J, Eubank J. Macroesthetic elements of smile design. J Am Dent Assoc. 2001;132(1):39-45. doi:10.14219/jada.archive.2001.0023

Belser UC, Magne P. Ceramic restorations: influence of tooth preparation design on fracture resistance and failure patterns. Int J Periodontics Restorative Dent. 2002;22(2):123–31.

Rambabu T, Gayatri C, Sajjan GS, Karteek Varma PV, Srikanth V. Correlation between Dentofacial Esthetics and Mental Temperament: A Clinical Photographic Analysis Using Visagism. Contemp Clin Dent. 2018;9(1):83-87. doi:10.4103/ccd.ccd_788_17

Babaei S, Kazemian M, Aghaee F, Ghodousi A. Evaluation of the harmony of smile appearance with personality traits in

patients applying for smile makeover. J Isfahan Dent Sch. 2023;18(4):261–8. doi: 10.18502/ijds.v18i4.12093

Bhat N, Mantri SS, Iliev GV, Qahtani FA, Godbole S, Mantri SP, Bal AS. First impression of teeth design on others: A facial and personality analysis in the Central Indian population. Niger J Clin Pract. 2019 Nov;22(11):1503-1508. doi: 10.4103/njcp.njcp_135_19. PMID: 31719271.

Tekbaş-Atay M, Büyükgöze-Dindar M. The relationship between smile type, dental composition, and personality traits in young adults. Galician Med J. 2024;31(4):e-GMJ2024-A29. doi:10.21802/e-GMJ2024-A29.

House MM. Full denture technique. In: Conley FJ, Dunn AL, Quesnell AJ, Rogers RM, editors. Classic prosthodontic articles: a collector's item. Vol. III. Chicago: American College of Prosthodontists; 1978. p. 2–24.

Mehu M, Little AC, Dunbar RIM. Duchenne smiles and the perception of generosity and sociability in faces. J Evol Psychol. 2007;5(1):183–96. doi: 10.1556/JEP.2007.1011

Willis J, Todorov A. First impressions: making up your mind after a 100-ms exposure to a face. Psychol Sci. 2006 Jul;17(7):592-8. doi: 10.1111/j.1467-9280.2006.01750.x. PMID: 16866745.

Sharma A, Luthra R, Kaur P. A photographic study on Visagism. Indian J Oral Sci. 2015;6:122. doi: 10.4103/0976-6944.171078.

Jain P, Godbole SD, Kambala SS, Mahatme C. Application of Visagism concept to assess the co-relation between the temperament and smile esthetics: A clinical study. *J Pharm Res Int.* 2021;33(48B):342–50.DOI: 10.9734/jpri/2021/v33i60B34577

Akmansoy ŞC, Abbasgholizadeh Ş, Özkan Y. Evaluation of the compatibility of visagism concept with natural teeth. Yeditepe Dent J. 2022;18(1):1–7.DOI:10.5505/yeditepe.2022.82621

Iliev GV. Personalized Digital Smile Design for Predictable Aesthetic Results. Balkan J Dent Med. 2016;20(3):172–7. doi: 10.1515/bjdm-2016-0027.

Vasantha Kumar M, Ahila SC, Suganya Devi S. The science of anterior teeth selection for a completely edentulous patient: a literature review. J Indian Prosthodont Soc. 2011 Mar;11(1):7-13. doi: 10.1007/s13191-011-0058-9. Epub 2011 Apr 30. PMID: 22379299; PMCID: PMC3095741.

Figure legends:

Fig1: 1a)Choleric Tooth Form, 1b)Sanguine Tooth Form, 1c) Melancholic Tooth Form, 1d)Phlegmatic Tooth Form

Tables legends:

Table 1: Distribution of psychological temperaments (questionnaire-based) against tooth forms identified through photographic analysis.

Table 2: Kappa Statistics

Graph : 1 Visagism vs Tooth form