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Visagism in Dentistry: Psychosocial approach of smile esthetics: A literature review

Cristina Stephany Prieto Veintimilla ^{1,*} and Pablo Esteban Tamariz Ordoñez ²

¹ Student of the Faculty of Dentistry, University of Cuenca, Ecuador.

² Dentist, Master in Restorative and Esthetic Dentistry, Professor at the Faculty of Dentistry, University of Cuenca, Ecuador.

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Abstract

Visagism is a doctrine that relates the physical aspect and psychology of each person. It's important to say that it has an intimate relationship with dentistry at the time of planning and performing aesthetically important treatments, such as anterior dental prosthesis and smile designs, which will allow the professional to obtain results in accordance with the patient, not only physically, but they will also be able to express his/her temperament and personality.

Objective: To determine the relationship between physical and aesthetic appearance and the human psyche.

General description: The aesthetics of the smile has a great influence on the psychology of a person, so it can affect their personality, temperament and even their way of relating to their environment; In this way, when designing a smile in the dental office, in terms of teeth, their shape, size, color, the contour of their gums, etc., professionals must consider the psychological characteristics of the patients and do not forget their personality, what they want to demonstrate and what are their expectations about the treatment.

Conclusions: Orofacial aesthetics directly influences on people's personality and behavior, and it is able to condition their interpersonal relationships. Thus, Visagism allows aesthetic treatments to go according to the patient, not only physically, but also with their personality and identity.

Clinical importance: A treatment supported by the philosophy of Visagism will allow multidisciplinary work and comprehensive results, achieving patient satisfaction due to his physical patience and the relationship he has with his personality.

Keywords: Visagism; Smile; Temperament; Personality; Discrimination; Inclusion

1. Introduction

According to a 2018 National Geographic magazine publication, an adult human being smiles an average of 15 and 100 times daily under normal conditions and indicates that the smile is the most easily recognizable facial expression even at some distance; based on this information, the following questions have been raised: how important is the smile for a person, and, can a smile really be considered transcendental for society and interpersonal relationships (1).

In order to obtain an answer, it is necessary to first establish the term that encompasses the whole question: Visagism, which is the name given to the incorporation of Hippocrates' Theory of Temperament (also known as Humoral Theory) and the physical image of a person. (2) Therefore, this doctrine has become paramount to establish the reason why patients seek treatments that improve their esthetics, such as orthodontics or smile designs, and also to plan the procedure that solves that need. The way a person sees him/herself and the image he/she projects to others can

* Corresponding author: Cristina Stephany Prieto Veintimilla

determine how successful he/she will be in relating to his/her environment, which can have positive consequences and result in integration, or negative ones, such as discrimination (3, 4).

It is worth mentioning that aesthetics is subjective, that is, it is not possible to establish 100% rigorous parameters to define it; this philosophy allows discerning between what is pleasant and what is artistic. An aesthetic element has the capacity to create feelings and sensations of pleasure in those who observe it, as well as to generate distinction from other objects or circumstances, so it has a great social component and an expressive function. So, it is clear that the artist - or in this case, the dentist - must consider the case from several points of view, that is, from the perspective of the professional, the patient and also the people in the environment with whom the latter is related, since on many occasions in everyday life, human beings act and see ourselves based on how we believe the perception of others will be (5).

Dental esthetics and related treatments are usually seen as superficial and cosmetic dental practices; however, it corresponds to a much more important area because it not only focuses on the physical appearance of the patient, but also influences their self-esteem, interpersonal relationships, behavior and various other psychological aspects such as emotions and security. It is important to keep in mind, as health professionals, that a patient should be seen in an integral way, which involves seeing not only the physical aspects but also the mental ones; that is why visagism proposes to develop a broader perspective regarding people and to understand the relationship of their physical image with their psychology, as well as the importance of this dependence on their life and interpersonal relationships.

Having said this, it is important to emphasize that this is not a subject that is frequently treated, because, as mentioned at the beginning, it is usually underestimated and even ignored; therefore, it is considered important to make a compendium with information from previously published scientific articles on the synapse between aesthetics and the psyche, as well as both variables separately, in order to reach a common point and understand the importance of including visagism within the aesthetic - not cosmetic - dental treatments.

This review of the literature will allow us to synthesize existing information and establish the importance of a comprehensive approach to the smile, not only focusing on the physical aspect but also on the psychology of the patient, taking into account his temperament, his way of relating to society and what he wants to express, considering that if the patient's wishes and feelings can be realized, it could even change his lifestyle and quality of life.

2. Methodology

In this article a review of the literature on Visagism in Dentistry was carried out, using scientific articles and other research documents from the Scopus, PubMed, Google Scholar, Science Direct and Scielo databases. Most of the scientific papers analyzed should have been published in the last 5 years, being written in English, Spanish or Portuguese.

2.1. Selection criteria

- Inclusion: Articles published from 2018 onwards in Spanish, Portuguese and English. Articles prior to 2018 with transcendental information.
- Exclusion: Articles published in languages other than Spanish, Portuguese and English. Articles difficult to access.

2.2. Literature review

Quoting Paolucci in his article Visagism: The Art of Dental Composition (2), the term Visagism derives from the Gallicism "visage", which translates to "face", and from the moneme -ism, which refers to a doctrine defined by the Brazilian artist Philip Hallawell, who is widely involved in the fields of art and beauty and who spoke of the incorporation of the Theory of Temperament proposed by Hippocrates (460 B.C.) with that of Carl Jung (Jungianism. C.) with that of Carl Jung (20th century), including the characteristics of the smile and the maxillofacial mass. Thus, Visagism can be defined as the fusion between a person's physical appearance, identity and emotions, considering not only art but sciences such as psychology, neurobiology, anthropology and sociology, in order to generate a complex concept of the human being. (2, 6, 10)

3. Relationship of visagism with dentistry

The way people see themselves and their personality can be manifested through the smile, which is of great importance when performing an esthetic rehabilitation; even with this, it is not a topic that is often discussed when planning a clinical case, so getting a personalized treatment that goes beyond visual aesthetics and that manages to convey the essence of the patient becomes a complicated task and whose objectives and expectations would not be fully met. Therefore, having knowledge of visagism would allow the dental professional to ensure that the patient's smile expresses his self-esteem, temperament, personality, desires and even certain aspects of his behavior, in addition to providing him with a pleasant smile that allows him to show it with confidence, thus improving his self-esteem and social relations, including in the workplace. (7, 8, 9) However, the first step to obtain results that satisfy the patient is the anamnesis, that is, the conversation and interview carried out by the professionals during the first dental appointment to find out the reasons why the patient comes for consultation, why he/she is specifically looking for an esthetic treatment and if he/she is aware of the treatment alternatives that exist for all cases. After this, an intraoral and extra oral clinical examination should be performed and case planning should begin. (7, 9)

3.1. The fifth dimension of the smile

For years, the smile was treated based on four main dimensions: biology, function, structure and esthetics; however, as mentioned above, real treatment success includes a fifth dimension, which allows each patient's personality and identity to be visible through their smile. A person whose personality is more delicate and has very political and friendly attitudes is not going to feel 100% comfortable with a smile that displays extremely large and strong incisors and canines to the eye, as opposed to an individual whose personality is more dominant and aggressive. With this, we take prosthodontic treatments known as "smile designs" from an almost cosmetic plane to a treatment with the power of having a visual language and getting patients to not only leave happy with their new smile, but amazed and with a much higher self-esteem, thus improving their quality of life in a comprehensive way. (7)

3.2. Non-verbal communication

A study conducted at Bangor University indicates that human beings are able to distinguish a genuine smile more easily than a forced smile and that there are smile muscles that do not contract if the smile is not genuine (1).

The mouth makes up a large part of the lower third of the facial mass and is of great importance as it is involved in two types of communication: verbal and non-verbal; thus, the upper anterior teeth can give an idea - erroneous or not - of a person's personality, for example: the lateral incisors are usually related to intellect, while the canines can express aggressiveness, ambition or a strong temperament (2).

The upper central incisors are the elements that have the focus of attention in the smile, according to people who have adopted Visagism in their study, because they correspond to the most prominent elements and, therefore, with a great capacity in nonverbal language; also, the lips are transcendental because they are able to modify the width and height of the smile, the posture of the corners, mouth corridor, among others (6).

3.3. The universal language

Lines and geometric figures are considered the basic elements or archetypes of language, because they are interpreted in the same way in all cultures, even if the language, race or education of the individuals' involved changes; this universal language has found its explanation in the activity of the Optic Thalamus, part of the Autonomic Nervous System, which is capable of recognizing archetypal characteristics and generating emotions. Horizontal lines are often read as symbols of stability, calm and comfort, while vertical lines represent strength and power, even masculinity. Likewise, there is talk of inclined and curved lines: the former, associated with dynamism and joy, and the latter, with delicacy, femininity, gentleness and sensuality. This is how the combination and predominance of these lines is able to achieve different expressions, for example, rectangles with their vertical major axis express strength, triangles, dynamism, squares, stability and ovals, delicacy and femininity (2, 7).

This concept is the same that was applied by Dr. Galip Gürel to describe the fifth dimension of the smile (2, 7).

4. Types of temperaments and their relation to the maxillofacial massif

According to Hippocrates, the human body is composed of four fluids: blood, phlegm, yellow bile and black bile, which when mixed are capable of generating health, if there is balance between the quantities, or disease, if there are excesses

or deficiencies. (10) As described by Paolucci (2), these four temperaments present specific characteristics regarding the face and dental morphology of the patients; this association is detailed below:

- Choleric (strong): these are people who stand out for their leadership and decisiveness, they also do so for their enterprising and passionate attitude. They usually have a rectangular face with marked angles. These people usually have rectangular teeth.
- Sanguine (dynamic): people with this temperament show a great capacity for communication, they are extroverted and active, they even tend to be impulsive and very enthusiastic; they usually have angled faces, prominent nose and wide mouth, in addition to sloping lines around the eyes and forehead, as well as triangular teeth, that is, they present an incisal edge with greater mesiodistal length than at the level of the cervical $\frac{1}{3}$.
- Melancholic (sensitive): very empathic people, organized, perfectionists, however, they can be quite shy and reserved; they generally present oval faces as well as their teeth and eyes very close together.
- Pacific (phlegmatic): diplomatic, peaceful and very discreet people and, sometimes, they are very spiritual; their face is round or square, with heavy eyelids and prominent lips, in most cases. These patients often have square teeth, which go according to their features (2, 11, 19).

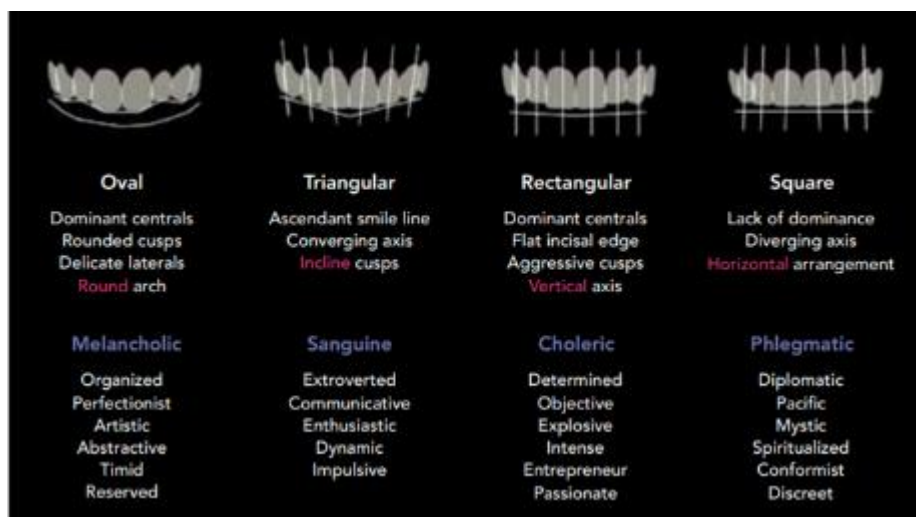


Figure 1 Relationship of smile characteristics and temperaments by Hippocrates

5. Visual Identity of Smile (VIS) or Visual Identity of Smile (IVS)

Based on Visagism, a smile must be unique for each case and is composed based on the color, shape and size of the teeth, as well as the way in which they coexist within the stomatognathic system offering function and harmony. For this reason, the term Visual Smile Identity (SVI) has been created, in which four basic designs are described according to the characteristics of the type of smile that the professional and the patient wish to achieve, and these should be carefully selected according to the physical appearance and personality of the individual seeking treatment. (Table 1), (7) Therefore, it is important that when a patient comes to a consultation with an image or reference of what he/she is looking for, the reason for his/her choice should be investigated, since many times it does not only refer to the physical appearance of the smile, but also to what it conveys; it is important to mention that sometimes due to the shape of the face, other physical characteristics or contraindications, meeting or even approaching the patient's expectations can become an extremely complicated task or, sometimes, impossible to execute (9).

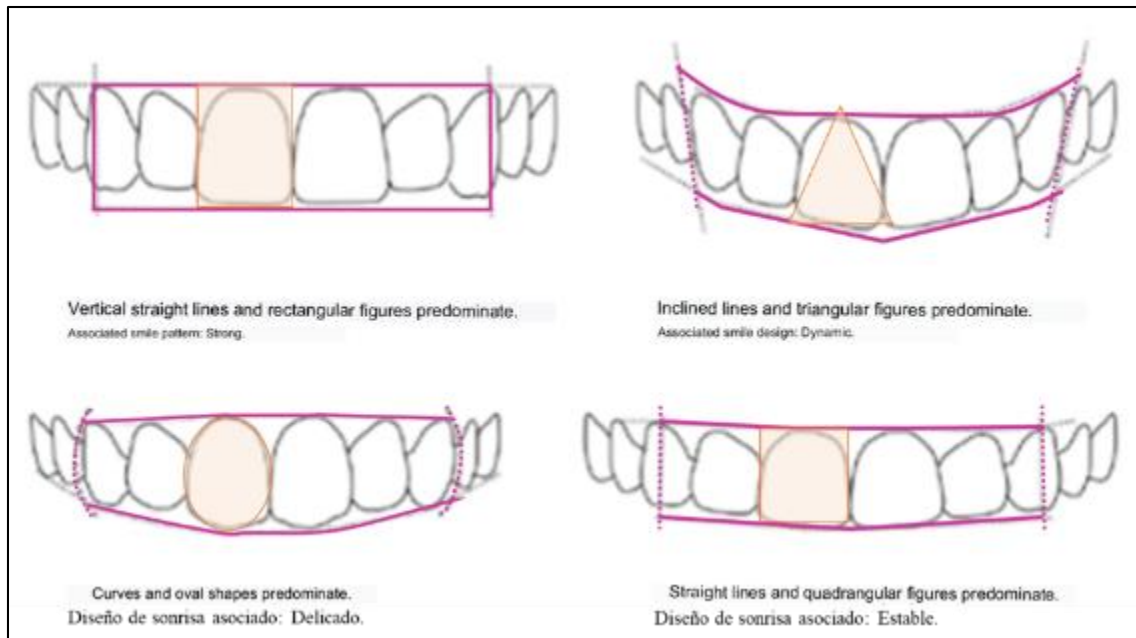
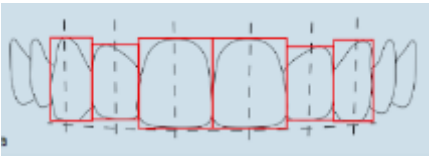
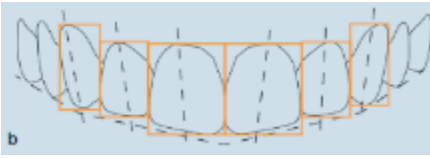
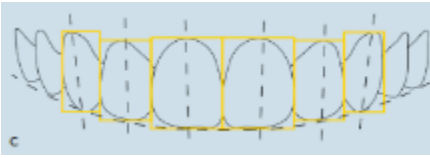
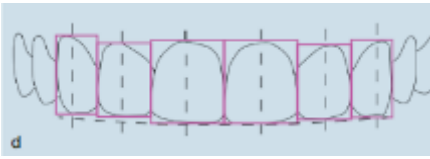


Figure 2 Visual Identity of the Smile

Table 1/ Figures 3, 4, 5, 6: Smile characteristics

Types	Characteristics	Graphic reference
Strong	Rectangular teeth Incisors and canines with similar crown lengths and dominant size 3D alignment of the teeth (occlusal view): rectilinear (7)	
Dynamic	Triangular or trapezoidal teeth Standard dominance (size) 3D alignment of the teeth (occlusal view): angled Straight incisal edge (7)	
Delicate	Oval teeth Medium dominance (size) 3D alignment of the teeth (occlusal view): standard Curved incisal edge (7)	
Calm/Stable	Square teeth Weak dominance (almost symmetrical teeth) 3D alignment of the teeth (occlusal view): straight or standard Horizontal incisal edge (7)	

6. Psychosocial impact of aesthetics and dental health

"Beauty is in the eye of the beholder." (13) Dental esthetics is a physical characteristic of great importance in the life of a person, both in individual perception and in psychosocial ideals, and therefore has a great influence - positively or negatively - on their daily life, and can even promote the acceptance or discrimination of the individual within society; that is why dental esthetics can be related to quality of life. (3, 4) However, the perception of beauty depends on factors such as age, social class, socioeconomic and educational level, culture and may even vary depending on the region or continent (6, 19).

Personal experience and the social environment in which a person is inevitably immersed are two conditions that greatly influence the perception that individuals have of themselves, which in turn means a challenge when planning a dental treatment that influences the characteristics of the smile; this is because the patient's expectations about the results may have even more weight than the professional's opinion when recommending appropriate procedures. Also, cultural factors and even media such as social media and television are of utmost importance, as it makes available to patients images and perceptions of the "ideal" esthetic, which constantly changes its parameters. In fact, it is common in the dental office for patients to bring reference images with them (especially of celebrities) to tell the professional what their expectations of treatment are (3, 13).

Discrimination is frequently related to body esthetics in general and has a strong association with dental esthetics specifically. In fact, within the process of social relations, people with greater physical attractiveness are frequently considered more pleasant and successful, thus strengthening social structures and also family and political ties, while those who are less attractive are considered less friendly and even aggressive, creating these stigmas and stereotypes from the first years of life when children begin to relate to their schoolmates. On these grounds, a study was conducted in a public hospital in Peru, which indicates that the appearance of the smile causes concern in patients on several occasions, as well as could lead to situations of discrimination by the social environment in which they are involved and, in a large percentage, within the health centers they go to, both aspects being increased by the opinion of health professionals and by the ideals imposed in images of "perfect smiles" found in health institutions and/or published in social networks. (3, 12) However, it is worth mentioning that a person's self-confidence and security will determine the perception he/she has of discrimination, since a person with low self-esteem may feel discriminated more frequently than one whose self-esteem is higher. (4) It should be clarified that discrimination should not be justified or romanticized under any circumstances, since it is categorized as a violation of Human Rights and a crime according to the Ecuadorian COIP and Constitution (Art. 11.2). (4, 14)

6.1. Aesthetic parameters of the smile

While it has already been made clear that beauty depends on many factors and is also in the eye of the beholder, there are certain characteristics that make a smile aesthetic or not. The esthetics of the smile is shaped by the color, texture, shape and dental alignment, but gingival tissues and facial characteristics are also involved. (6) The upper central incisors are the teeth that stand out the most, so their position, alignment, incisal edge and the presence of interincisal pockets is an aspect to consider. The height of the smile (or gingival exposure) is also considered important when evaluating its esthetics: a medium smile will always be more esthetic than a high or low one, having a gingival exposure from 0 to 2 mm in the upper jaw, so it can be deduced that the more the teeth are covered by the upper lip, the less esthetic the smile will be. (8, 15)

It should be noted that all these characteristics are subject to variations according to age and other factors already mentioned.

Table 2 PIDAQ

Categories	Score
Dental Self-Confidence (DSC): measures the positive concept of dental appearance (7)	6 items
Social Impact: measures people's reaction to dental exposure during the act of smiling (7)	8 items
psychological Impact: indicates the negative emotionality associated with dental aesthetics (7)	6 items
Aesthetic Concern: indicates the disapproval of the medium based on the aesthetics of the smile (7)	3 items
General interpretation: 0 = non-existent; 1= a little; 2= more or less; 3= strong; 4= very strong	

Table 3 Aesthetic Parameters of the Smile

parameters	Classification	Ideal
Arc of smile	Convex	Height between centrals and upper wings: Women: 1.0 to 1.5 mm Men: 0.5 to 1.0 mm (15)
	Consonant	
	Curved	
	Straight	
Symmetry Relationship of the Maxillary Central Incisors	straight	The maxillary lateral incisors should be 75-85% of the dimensions of the central ones (more in women than in men). (fifteen)
	75%	
	85%	
Proportion between Upper Anterior Teeth	Golden Ratio: 1:1.618 and 1:0.618	Golden Proportions: the lateral incisor represents 60 - 62% of the width of the central and the canine, 60 - 62% of the width of the lateral. (8, 15)
Buccal Runners	Widths: Present when the dental arch is narrow	Intermediate (15)
	Intermediate: Present when the dental arch is intermediate	
	Narrow/None: Present when the dental arch has a severe transverse diameter	
Gingival design	Classic: Canines and Central Incisors at the same level	Classic (15)
	Modified: Canine gingival margin above the central one; side and center at the same level	
Gingival exposure	High Smile: Exposure of 100% of the crown + continuous fringe of gum	Medium Smile (15)
	Medium Smile: Exposure from 75 to 100% of the crown + gingival papillae	
	Low Smile: Exposure less than 75% of the crowns without gingival exposure	
Shape and Size of the Teeth	Square Face: Quadrangular Teeth	It depends on the characteristics of the patient (15)
	Oval Face: Oval Teeth	
	Rectangular Face: Rectangular Teeth	
	Triangular Face: Triangular Teeth	
	Women: More rounded and elongated teeth	
	Men: More angular and square teeth	

Also, it is necessary to take the smile as a set of various tissues and not only of teeth. All its components act as "frames" for each other and should be looked at from the inside out: 1) the lines, angles and axial inclinations are the frame of a single tooth, 2) the gingival margin frames the teeth as a whole, 3) the lips correspond to the frame of the teeth and gingiva, and finally, 4) the face which frames all the above elements. (16)

7. Research methods of the impact of smile on dental appearance

7.1. Psychosocial Impact of Dental Appearance Questionnaire (PIDAQ)

The PIDAQ is a multidimensional research item applied to individuals in a study sample to assess the psychosocial impact of smiling.

This questionnaire is composed of four categories: Dental Self-Confidence (DSC), Social Impact, Psychological Impact and Aesthetic Concern, which evaluate through items the importance of the smile in the patients' quality of life (4).

7.2. Rosenberg Self-Esteem Scale

This measurement scale proposes a way of evaluating a person's level of self-esteem by applying 10 statements (5 positive and 5 negative) so that the respondent can rate them according to whether they are applicable or not in his/her life, for example: "I feel that I am a person of merit" (positive statement) and "I tend to feel that I am a failure in everything" (negative statement). The results of the survey are summed up giving an interval between 10 and more than 25, being "Good Self-Esteem" when the value obtained is greater than 25 points, "Normal", from 15 to 25 points and "Low" when less than 15 points are obtained. (18)

8. Discussion

The texts by Paolucci, Rodrigues de Holanda and López-Rodríguez (2, 6, 9) that describe Visagism and the impact of smile aesthetics in a person's life agree on several points, such as, for example, that the characteristics of the smile can manifest what a person feels and the way in which he or she identifies himself or herself. In fact, this relationship is also mentioned by Alvarez-Ramirez (5), who speaks of aesthetics in a general scope and defines an aesthetic element as something capable of producing feelings and sensations in those who observe it. So it can be said that a smile should express the feelings of a person and also produce feelings in those who observe it; and this depends on what the wearer of the smile wants to show according to his temperament, identity and personality, all through nonverbal communication (2). That is why it is important what Bangor University indicates in its study on smiling (1): a human being is able to distinguish more easily a genuine smile than a forced one.

Although it is a controversial topic and a difficult reality to accept, physical beauty has a strong influence on an individual's social relationships. The aim of this statement is not to standardize patterns or stereotypes about appearance, but to clarify the importance of aesthetics in everyday life and the consequences it can have. Based on this, Carbajal and Klages (3, 4) consider it transcendental to reflect that the way a person looks physically has a direct influence on his quality of life, precisely because of the relationship that his appearance has with his self-esteem and the probability of success or failure during social contact. Carbajal (3) also indicates that people considered attractive have better opportunities in society than those who are not, due to stereotypes that relate beauty to kindness, class and ability. However, it is important to recognize that, as Morales-Domínguez (13) indicates, the perception of beauty depends on cultural, educational and socioeconomic factors.

The universal language (comprised of lines and archetypal geometric figures) and non-verbal communication have an intimate relationship within Visagism in Dentistry. The predominance of certain lines and figures in the smile has the capacity to produce different emotions in the beholder and could even induce an impression of the personality of the individual. Paolucci and Gürel (2, 7) agree with this theory and recognize that a person with the "wrong" smile will never feel comfortable as a whole, as he/she will not be able to recognize his/her identity in it, and may even completely dislike its esthetics. Despite this, Morales (13) suggests that there may be cases in which there is no harmony between the patient's physique and the way he or she is, or that this is not clearly distinguishable, so that the professional may have conflicts when deliberating on the correct treatment option and what image the patient will project at the end of the treatment.

According to Paolucci, the Maxillofacial Institute, Toledo-Quintana and Sripadungporn (2, 10, 11, 12), each temperament described by Hippocrates twenty-two centuries ago is attributed specific physical characteristics, for example, a Choleric person will have a rectangular face with marked angles, and rectangular shapes predominate in his smile, while a Melancholic person would present an oval face and a smile with a great abundance of curved lines. The Pacific temperament has more squared lines and the Dynamic, inclined lines. It is worth mentioning that Rambabu (19) called this description Visual Identity of Smile and it is based on the Universal Language described by Paolucci and Gürel (2, 7). Likewise, the latter (7) described, based on the same principles, five types of smile design: strong, dynamic, delicate and stable, which also have specific characteristics of the Universal Language.

It is absolutely necessary and indisputable that a treatment is multidisciplinary, that is, that several professional areas are involved to achieve optimal and comprehensive results. In this way, aesthetics as well as physical and mental health can be achieved. Having said this, it is clear that the participation of professionals in Psychology is indispensable to determine not only the temperament and personality of the patient, but also to clarify the psychosocial influence of esthetics in the patient's life, as indicated by Paolucci, Klages and Arenas-Sánchez. (2, 4, 18)

9. Conclusion

- Visagism allows aesthetic treatments to be in accordance with the patient, not only physically, but also with his or her personality and identity. A treatment based on this doctrine will allow a multidisciplinary work and integral results.
- The shape of the smile arch, dental morphology and surrounding soft tissues usually have characteristic aspects of each temperament described by Hippocrates, so the knowledge of their relationship will guide the professional closer and closer to the patient's expectations.
- Orofacial esthetics directly influences the self-esteem and interpersonal relationships of people, and may contribute to situations of discrimination or inclusion.
- Considering the psychological aspect of the human being will allow professionals to achieve a smile that expresses the personality, emotions and temperament of their patients.
- Discrimination and stereotyping are not positive situations at all within society, however, physical beauty has a great influence on the psychology and social relationships of individuals.
- If a patient is suspected of having conflicts with his or her physical appearance that negatively influence his or her communication and socialization or is a reason for discrimination, multidisciplinary treatment will involve professionals in psychology and questionnaires such as the PIDAQ should be applied to clarify the patient's specific condition.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors have no conflicts of interest.

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