MAKING SMILES-SAME OR DIFFERENT PERSPECTIVE FOR PROSTHODONTIST AND ORTHOTONTIST?

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ABSTRACT : Dental professionals are compelled to perform high-quality dental restorations because of the indisputable benefits of a beautiful smile. The esthetic planning of the smile is subjective in the sense that the clinician must be aware of the most significant factors in order to undertake treatments with a predictable outcome

Keywords: smile parameters, orthodonthics, fixed dentures, etc

INTRODUCTION.

A significant improvement in the population's material and spiritual well-being has resulted in an increase in demand for beauty. In social interactions, facial appearance is extremely important [1].

An attractive smile has been shown to influence personality development, social relationships, and job success [2].

Dental professionals are compelled to perform high-quality dental restorations because of the indisputable benefits of a beautiful smile. Before beginning treatment, specialists must examine the demands of the patients [3]. Previous research has found a considerable difference in the assessments of smile attractiveness across laypeople and specialists, males and females, and people of various ages [4-7]. This data can assist dentists in better understanding how various people rate their smile. Dental therapy can progress smoothly once the treatment plan satisfies a subject's desires.

The hard-tissue component (i.e., the teeth), the amount of gingival show, and the framing of the lips displayed in a smile all contribute to an appealing smile[8,9].

Several definitions and concepts for smile aesthetics have been proposed by researchers, including anterior smile line, smile arc, upper lip curvature, most posterior visible teeth in a grin, smile index, and dynamic smile symmetrization [10,11].

These smile beauty qualities were used as the major criterion for professionals to use when developing a treatment plan. The importance of gingival presentation in developing an aesthetically pleasing smile is often overlooked by specialists who focus on hard-tissue aesthetics such as tooth location, size, shape, and color [12,13].

Clinical criteria such as interdental gingiva height, gingival zenith (GZ) point position, gingival line direction, and gingival symmetry are crucial in addition to healthy gingiva characteristics [14].

Surprisingly, the definition of beauty varies by country and ethnicity. Several research on Caucasian people have been undertaken to analyze smile traits and related factors, but no equivalent data exists for Asian populations [15].

CLINICAL IMPLICATIONS

The esthetic planning of the smile is subjective in the sense that the clinician must be aware of the most significant factors in order to undertake treatments with a predictable outcome.

In a patient's smile, the smile line is quite crucial. The amount of dental and gingival tissue revealed during movements should be examined as well as the size and contour of the lips (static analysis) (dynamic analysis).

The length of the maxillary lip and its range of movement govern the degree of tooth display in a smile, resulting in a variety of smiles, with excessive gingival display deemed unattractive. The amount of tooth displayed in a smile is valued differently depending on the observer [16-18].

Clinical dentistry faces the difficulty of achieving function, health, and aesthetics all at the same time. Because of its subjective nature, the esthetic result is the most difficult to quantify. To achieve symmetry, harmony, balance, and proportion in their treatments, dentists must supplement their technical skills and scientific understanding with a knowledge of the arts.

The impression of attractiveness in a smile is influenced by its composition, and in the natural dentition, principles have been presented. When repairing esthetically problematic situations, these guidelines have been generalized [19].

Different metrics, such as midline coincidence and symmetry on each side of the midline, have been employed to provide an objective esthetic analysis in a systematic and dynamic manner.

There is a loss of alignment between the facial and dental midlines in 14.3% to 31.6 percent of patients, according to studies [20]. Lack of midline alignment has been investigated with the goal of determining the point at which deviation becomes unattractive to the general public.

The beginning point for an esthetic and functional treatment plan is the position of the maxillary central incisors. Because the lateral incisors are smaller, the maxillary anterior incisal margins and lower lip appear as "gull wings." [21].

The buccal corridors are formed as the mouth expands to make a grin and dark regions appear between the exterior of the maxillary teeth and the labial commissure.

These buccal corridors are negative areas that come from the gap between the breadth of the maxillary arch and the width of the grin. They have an aesthetic effect and are dependent on the number of maxillary teeth visible [22-25].

Diastemas have been reported to adversely affect a smile. Some grin characteristics alter with age, particularly the amount of maxillary and mandibular teeth exposed during a smile. Many of the other variables are fixed [26].

THE ORAL REGION AND ESTHETICS

The smile is mostly expressed through the mouth and eyes. The top and lower lips, the corners of the mouth, and the anterior section of the cheeks are all part of the oral region.

The nasolabial grooves, if present, go from the nose to the angles of the mouth and may extend inferiorly through the oral region. The philtrum is a vertical dip of the upper lip that extends from the nose septum to the red zone and is usually present.

The lips are two highly movable fleshy folds that surround the mouth's opening. Their anatomy changes when they are resting. They might be thick or thin, wide or narrow, short or long, all depending on genetics and the shape of the teeth.

Lips that are too thin are usually stretched; this is due to a lack of muscle mass. Externally, the lips extend from the base of the nose to the contact line, including the exposed red zone? The red zone of the lips forms a curving elevation and meets the skin at an oblique angle in

most cases [27].

Between the red zone of the lip and the base of the nose, there is a depression; between the lower lip and the chin, there is a similar but larger depression. In a profile view, the curve of the lips and the person, the lips recede, enhancing the prominence of the nose and chin.

At rest, the lips may meet in a straight line or slope upward or downward toward the corners in a facial view. The small top lip frequently curls upward, stays open, and creates an acute angle at the corners. Dentists can change the position of .

SIMLE ANATOMY

A true smile is a complex gesture. Viewed from the facial aspect the smile begins as the corners of the mouth extend laterally. Except for persons with a small upper lip, the lips may remain in contact.

The lips part, the corners of the mouth curve upward, and the teeth are exposed to view as the smile expands and approaches laughter. Some people only exhibit their maxillary teeth, while others only show their mandibular teeth. Some people display both. The mesial half of the maxillary first molars and the mandibular second premolars may be revealed as the angles of the mouth widen and the lips separate. While most people do not expose their gingival tissues when smiling, those with a small upper lip invariably do [30].

While most people do not expose their gingival tissues when smiling, those with a small upper lip invariably do. In a broad smile, those with hypermobile lips or huge alveolar processes may do the same.

The jaws separate as the smile progresses to a laugh, and a dark area forms between the maxillary and mandibular teeth. Isn't this space sometimes referred to as negative space? After that, the teeth are silhouetted against the black background. While individual teeth in a complete dentition are undetectable, missing teeth and diastemas stand out because they interrupt the normally peaceful black space. A visual impact of surprise is created by anomalies in the dark space's configuration[31].

The earliest sign of a smile is a thinning of the lips and a distal extension of the corners of the mouth when viewed from the side. This continues until the lips expand wide enough to reveal teeth. The dark area remains, and the tongue may or may not be seen, as in the facial view.

The dentist is concerned with the aesthetics of the oral region of the face. Although a component may be unpleasant in and of itself, the way lips, teeth, and dark space mix creates the balance that makes the mouth region appealing. An individual tooth may be rotated, shorter, or somewhat overlapped than one on the opposite side. These little flaws give the grin personality, breaking up the artificiality and monotony of near-perfection.

Major interruptions of the black region, on the other hand, detract from the overall impression of the smile in adults. For the majority of patients, their natural smile is becoming increasingly important and should be kept. A dentist may usually repair a bothersome aspect, but both the patient and the dentist must agree on what constitutes improvement [32-24].

Because the dentist has a responsibility to preserve or improve the look of the oral region, an accurate record of what exists and what should be modified is required prior to treatment. In both resting and smiling positions, all characteristics of concavities in the skin are more visible [28].

The lips may be abnormally prominent or recessive due to the inclination of the teeth. Because the interarch distance may be reduced and the nose and chin tend to resemble each other in the edentulous natural or artificial teeth to preserve or alter the relationships between the visible components of the oral region and the oral cavity [29].

The most difficult aspect of achieving esthetic excellence is achieving harmony between the components of the oral region and oral cavity.

the oral region should be noted. The dentist can use a smile anatomy chart to note the teeth that are visible, the extent to which they are visible, the curve of the lips, the length of the lips, and the all-important black area [35].

Attractiveness, IQ, personality, and actions are all influenced by malocclusions. People with a normal occlusion are thought to be more attractive, clever, pleasant, and outgoing; anterior crossbites are thought to be unattractive, while people with many diastemas are thought to be the least conscientious and agreeable [36]. People with perfect smile were judged smarter and more fit for the job, according to a recent study of the effect of tooth arrangement on human resources staff [37]. Discrimination against people with facial peculiarities is very common, and the quest for solutions to improve face esthetics, such as orthodontic treatment, orthognathic surgery, or cosmetic treatments, has grown in popularity over time. The goal of facial attractiveness research is to figure out which face characteristics are linked to attractiveness. Some studies have demonstrated a preference for symmetrical and average faces, yet beautiful faces have unique traits that go beyond the ordinary.

Clinically, the closer the central incisors are to the dental midline, the more noticeable any changes in smiles are; this justifies the numerous research studying the association between vertical location of the central incisors and a pleasant smile.

Nonetheless, the literature on these alterations in canines is still largely unexplored. There are no studies that compare the variables of incisal edges and gingival margins when the canines' vertical position is changed without changing the dental crown size.

Because well-established canine guides are necessary for a healthy masticatory system, the canine vertical position is an important aspect in smile esthetics and occlusion functionality. Other factors such as the eyes, nose, and face shape, according to some experts, have little bearing on the perception of a smile.

Other studies have revealed that when close-up photographs are used instead of full-face images, the perception of smile details is more relevant, and that this strategy may reduce the distractions of facial traits and lead to a greater focus on dental modifications [38,39]. According to research, a small gingival show enhances the attractiveness of a smile.

According to the literature, asymmetries higher than 0.5 mm at the gingival margin of the maxillary canines are regarded unsightly, and symmetric changes are preferable to asymmetric changes [40].

Gingival hyperplasia, gingival recession, overeruption, changes in form and tooth size, and traction of an included canine can all cause alterations in the canine gingival margins in clinical practice. If the maxillary lateral incisors are missing, which is more prevalent unilaterally, a viable approach is to replace the missing incisor with the canine, which has the premolar's space. The gingival contour of the premolar, which becomes more evident after the altered dental location, is often below the gingival edge of the contralateral canine, causing esthetic pain. Patients with such modifications may benefit from periodontal plastic surgery, intrusion and restoration of premolar incisal margins, or extrusion of the contralateral canine and incisal wear, according to the literature [41-43]

Canine extrusion during appliance bonding or wire bending during finishing to provide lateral functional guidance may have a negative impact on smile aesthetics, which orthodontists should be aware of. Grinding the cusps, depending on the structure of the maxillary canines, may readily create favorable esthetic effects in some patients.

SMILE PREFERENCES

One of the most common reasons people seek dental treatment is to improve their facial and dental attractiveness, as a

smile has a significant impact on facial esthetic. To determine smile improvement following treatment, dentists should evaluate smile composition in the frontal, three-quarter, and lateral views [45-47].

Ackerman et al noted that a posed frontal smile, which is voluntary and reproducible over time, is beneficial to orthodontic therapy. During routine data collection, this should be noted. In real life, however, the attractiveness of a smile is not assessed based solely on a frontal perspective [44].

According to Dierkes, a beautiful smile is achieved by balancing the horizontal, vertical, and transverse components of the face features. Furthermore, Hulsey stressed the importance of the anteroposterior dimension in malocclusions, stating that information about the connection between teeth and surrounding soft tissue in the frontal view is required for a basic assessment of facial

Patients' and dentists' views of variance in the appearance of the anterior teeth and their relationship to the surrounding soft tissue were investigated by Kokich et al [48]. Their findings revealed that orthodontists, general dentists, and individuals have diverse perceptions of maxillary midline deviation and incisal plane cant discrepancies.

According to Janson et al, a little dental midline deviation of 2.2 mm is acceptable to both orthodontists and people, but buccal corridor diameters and smile arc have no effect on smile beauty [49].

Both people and orthodontists prefer a smile arc parallel to the lower lip and minimal buccal corridors, according to Parekh et al, whereas smile arc flattening and excessive buccal corridors are considered unattractive traits [50].

According to An et al, dentists are better at identifying changes in dental midline shifts and incisal plane canting than patients; also, orthodontically treated people are more critical of incisal plane canting and dental midline shifts than nontreated patients [51].

Several studies have been undertaken to evaluate whether dental professionals and people have different preferences for smile esthetics. Individual patients and dentists may have various esthetics in everyday social interactions.

Smile esthetic is a subjective concept that is influenced by a person's past experiences and social surroundings. Furthermore, due to varying dental experiences, dental experts and the general public have different preferences for an esthetic smile.

As a result, during orthodontic treatment planning, patients' opinions and preferences toward smile esthetics must be taken into account. Orthodontists should also evaluate the various aspects of a beautiful smile, which varies from one patient to the next.

aesthetic smile preferences, which necessitates an examination of esthetic smile preferences. The outcomes of such evaluations give dentists pointers on how to communicate with orthodontic patients. Several studies have analyzed the effect of buccal corridors on smile attractiveness and concluded that large buccal corridors are considered less attractive.

These findings should be considered in orthodontic treatment planning because orthodontic treatment can broaden the smile by expanding the narrow dental arch and reducing the buccal corridor space to improve esthetics. Machado stated that buccal corridors should ideally be average, followed by narrow or nonexistent ones, and Sharma et al reported that the existence or not of buccal corridors and their esthetic evaluation depended greatly on the ethnic origins of both participants and observers [52,53].

Regarding the upper lip thickness, the general dentists, orthodontic patients, and patients selected 5-mm upper lip thickness as the most attractive in the lateral view. However, orthodontists selected a thickness of 7 mm, similar to that reported by McNamara et al [54].

CONCLUSIONS

Many factors can affect the establishment of esthetic beauty standards, such as income, age, and culture, and this implies that the ideals of beauty are constantly changing

Patients' expectations for dental treatment have risen in response to the growing need for facial esthetics, resulting in the creation of increasingly effective therapeutic procedures. Few studies have been conducted to date to determine the impact of these beauty standards and their variations on the attractiveness of a smile.

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