Smile aesthetics

A smile is a facial expression that is closely related to the emotions and psychological state of a person. A smile is exhibited when a person expresses happiness, pleasure or amusement. It is the most important of facial expressions and is essential in expressing friendliness, agreement and appreciation. A smile requires the coordination of facial, gingival and dental components that are stimulated voluntarily or involuntarily by various emotions. It is evident that each smile is different and particular to each individual. An impaired smile on the other hand, has been associated with higher incidences of depression.

Aesthetics deals with objective and subjective beauty. Objective beauty is based on the appreciable properties possessed by the object itself. However, subjective beauty is relative to the perception and emotion of the observing person. Perception, however, is in the eyes of the beholder. Smile aesthetics is based on personal beliefs, cultural influences, aesthetic trends and fashion, and input from the media. Hence, smile aesthetics is a multifacational issue, which needs to be adequately addressed for any aesthetic treatment. The objective beauty of a smile is defined in various ways in the literature. It would be like to summarise it as follows: "Smile design is a systematic process governed by the psychological, health, function and rules of natural aesthetics to bring about some changes in soft- and hard-oral tissue within anatomical, physiological and psychological limitations, thereby creating a positive influence on the overall aesthetics of a person's face and personality as a whole." A smile design has been defined in various ways in the literature. Indeed, mathematics has been considered the only frame of reference for comprehending nature. Therefore, the cosmetic dentist needs to be familiar with various mathematical and geometric concepts for achieving smile aesthetics and their clinical protocols.

The Smile Design Wheel

The Smile Design Wheel was developed to provide the dentist with a systematic process for smile design. The wheel has three main segments: Perception, Personality and Desire. Each segment is divided into three related zones.

Desire

Desire is a subjective component. Increased public awareness of smile aesthetics through the media has led to a rapid increase in patients' desires and levels of expectation. Patients are now willing to pay for the enhancement of their smile aesthetics. Therefore, the ethical responsibilities of cosmetic dentists in identifying the need or want-based desires of patients need to be increased. The desires and levels of expectation in many patients are higher than what is clinically achievable, and the desires are not aligned with the patient's mental health. Hence, understanding the patient's perception of the treatment result is crucial. The use of questionnaires, visual aids, such as previous clinical cases of smiles or famous celebrities, can aid immensely in this process.

The psychological assessment of any person is subjective; however, aspects like perception, personality, expectation or desire are important for the smile design procedure. Patient satisfaction is closely related to these aspects. Hence, understanding the pyramid of psychology is an integral aspect in smile design.

Step I: Understand – The pyramid of psychology

According to Prof. Robert A. Baron, psychology is best described as the science of behaviour and cognitive processes. Behaviour deals with any action or reaction of a living organism that can be observed or measured. The patient's perception of any treatment process deals with every aspect of the patient's mental life: thoughts, memories, mental images, reasoning, decision-making, and so on, in short, with all aspects of the human mind.

In smile design, we normally try to understand the second part of psychology, i.e., the human mind or rather the minds of our patients. There are three fundamental zones we consider in detail for the psychological pyramid assessment: perception, personality and desire.

Perception

Perception is the process through which a person can select, organise and interpret input from their sensory receptors. A person cannot imagine beauty and aesthetics without some input in advance. The media is the most common source of information at present regarding beauty and aesthetics. A patient usually conceives his or her own perception of smile aesthetics based on his or her own personal beliefs, cultural influences, aesthetic trends within society and information from the media.

Dentists need to communicate with their patients to determine such information during the initial consultation, which helps in understanding the patient's perception of the treatment result. The use of questionnaires, visual aids, such as previous clinical cases of smiles or famous celebrities, can aid immensely in this process.

Personality

According to the human psychology, personality is an individual's thoughts and relatively stable pattern of behaviour, thoughts and emotions. It is to be noted that each patient's problem or concern should be comprehensively evaluated with respect to his or her personality type. According to Roger F. Levin, there are four personality types:

- Driven: This type of person focuses on results, makes decisions quickly and dislikes small talk. They are highly organised, like details in control, their goals are businesslike and assertive.
- Expressive: This type of person wants to feel good; he or she is highly emotional, makes decisions quickly, dislikes details or paperwork, and likes to have a good time.
- Amiable: People with this personality type are attracted by people with similar interests, fear consequences, are slow in decision-making, react poorly to pressure, are emotional and slow to change. Analytical: This type of person requires endless details and information, has an inquiring mind, is highly exciting and emotional. This type is the most difficult to convince and takes the longest to reach a decision.

Dr. Sushil Koirala

Modern trends in cosmetic dentistry and media coverage of celebrity makeovers have increased public awareness of dental aesthetics. People now know that smile aesthetics plays a key role in their sense of well-being, social acceptance, success at work and in relationship- ships, and self-confidence. The aesthetic expectations and demands of dental patients have increased substantially. Now, a glowing, healthy smile is no longer only available to millionaires and movie stars. Therefore, many dentists are incorporating various smile design protocols in their daily routines to meet the increasing aesthetic demands of their patients.

Media CME

The article has been accredited by Health Authority - Abu Dhabi as having educational content and is acceptable for up to 2 credits (Category 1). Credit may be claimed for one year from the date of subscription.
Macro-aesthetics

Macro-aesthetics deals with the overall structure of the face and its relation to the smile. To appreciate the macro-aesthetic components of any smile, the visual macro-aesthetics distance should be more than 5 feet. However, in clinical practice the assessment of the macro-aesthetic components is done using various facial photographs with geometric and mathematical appraisals, using reference points and their interrelation. Various facial reference points and guidelines for micro-aesthetic assessment for orthognathic and facial cosmetic surgery; however, in smile design the following macro-aesthetic guidelines are considered fundamental:

- **Facial midline**
- **Facial thirds**
- **Interpupillary line**
- **Nasolabial angle**
- **Rickett’s E-plane**

Mini-aesthetics

Mini-aesthetics deals with the aesthetic correlation of the lips, teeth and gums at rest and in smile position (Fig. 7). The aesthetic correlation can be appreciated properly when viewed at a closer distance than the traditional macro-aesthetics distance.

The visual mini-aesthetics distance is similar to the across-the-table distance, which is normally within 2 to 5 feet. There are various guidelines in aesthetics based on the relationship and ratio between lips, teeth and gingival tissue. These can be analysed during mini-aesthetic assessment using frontal, vertical and transverse characteristics of the smile. Clinical photographs are the basic tools for mini-aesthetic analysis. The smile can be analysed at rest (M-position) or smile (E-position).

In the M-position, the following references are measured and assessed:
- **Commissure height**
- **Philtrum height**
- **Visibility of the maxillary incisors**

In E-position the following references should be analysed:
- **Smile line**
- **Dental midline**
- **Smile symmetry**
- **Buccal corridor**
- **Display zone and teeth visibility**
- **Smile index**
- **Lip line**

Micro-aesthetics

Micro-aesthetics deals with the fine structure of dental and gingival aesthetics (Fig. 6). Mini-aesthetics can be appreciated at a visual micro-aesthetic distance of less than 2 feet or a normal make-up distance. For the clinical assessment of micro-aesthetic components of the teeth and gingival tissue, appropriate illumination and magnification tools are required for intra-oral examination. Necessary clinical intra-oral photographs should be taken for documentation and future reference.

For micro-aesthetics, the detail of the individual tooth structure and its relation to the surrounding gingiva and the adjacent teeth should be assessed. The following are the major points to be considered:
- **Upper centrals (tooth size ratio)**
- **Principle of golden ratio**
- **Axial inclinations**
- **Incisal embrasures**
- **Contact point progression**
- **Connector progression**
- **Shade progression**
- **Surface micro-texture**

In smile design, the aesthetic conditions related to gingival health and appearance are an essential component. The gingival shape, position, embrasure, and contour in relation to the teeth are interdependent. The following are major aspects that should be addressed during smile design to achieve gingival or pink aesthetics:
- **Gingival shape**
- **Gingival contour**
- **Gingival embrasure**
- **Gingival depth**
- **Gingival height (position or level)**

To achieve higher patient satisfaction and long-lasting treatment results, the following should be the sequence in any smile design procedure: proper comprehension of psychological aspects, the establishment of health and the restoration of function within its normal limit, and the subsequent enhancement of aesthetic components.

Conclusion

Today, various protocols of smile design are available in cosmetic dentistry. However, most clinicians wish to use the simplest protocol with the most predictable results. It is to be noted that smile design should always be a multifactorial decision-making process that allows the clinician to treat patients with an individualised and interdisciplinary approach.

In summary, dental aesthetics are based on three fundamental principles: natural proportionality, natural size and expression of the patient’s health and appearance. The Smile Design Wheel, presented in this article, indicates the most important components (PIFA pyramidal) of smile design, their clinical significance and sequence to be maintained during the smile design procedure. I believe that the Smile Design Wheel is a simple and practical protocol in smile design that can help the clinician to easily comprehend the ‘complex’ smile design procedures of aesthetic dentistry.

Media CME

Self-Instruction Program

Dental Tribune Middle East & Africa in collaboration with CAPP introduce to the market the new project mCME - Self Instruction Program.

mCME gives you the opportunity to have a quick and easy way to meet your continuing education needs.

mCME offers you the flexibility to work at your own pace through the material from any location at any time. The content is international, drawn from the upper echelon of dental medicine, but also presents a regional outlook, in terms of perspective and subject matter.

How can professionals enroll? They can either sign up fora one-year (10 exercises) subscription for the magazine for one year (US$5) or pay (US$20) per article. After the payment, participants will receive their membership number and will be able to attend to the program.

How to earn CME credits? Once the reader attends the distance-learning program, he/she can earn credits in three easy steps:
1. Read the articles.
2. Take the exercises.
3. Fill in the Questionnaire and submit the answers by fax (+971 5 56888885) or Email info@cappmea.com

After submission of the answers, (name and membership number must be included for processing) they will receive the Certificate with unique ID Number within 48 to 72 hours.

Articles and Questionnaires will be available in the website after the publication.