Correlative Evaluation of Temperaments and Proportions in Smile for Invocation of Customized Smile in Young Individuals using Photography

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Abstract--- A prosthesis can be said to be successful only if it fulfils all the components of replacement including Esthetic. Esthetics play a prime role in the success of the prosthesis. The knowledge of concept and proportions used in dental Esthetic can be used to enhance esthetics of the prosthesis. For improving the communication, confirming the diagnosis and thereby enhancing the certainty of the treatment, a conceptual tool that can be used is Esthetic smile design. Since smile analysis is an vital part of the complete facial examination carried out by dental domains. Evaluating the patient's smile benefits the dentist in many ways.it allows the clinician to see what needs to be done, what can be done, and what should be accepted. This study aims to evaluate and correlate the temperaments and various proportions in smile of young individuals for invocation of customized smile using digital photography. Study comprising of 140 participants. All the participants will be given a self-reporting type of questionnaire. Their temperament will be identified after the analysis of the questionnaire. Dental proportions (Golden proportions, RED, Golden percentage) will be evaluated by taking the photograph of the patient. A digital camera will be used for capturing the photographs. Once we have the proportions identified they will be co related to evaluate if

there exists any correlation between a particular proportion and temperament. Statistical analysis will be done by using response analysis using CHI square test & Spearman correlation test will be applied for analysis. The software used in the analysis will be SPSS 20.0 version and $p<0.05$ is considered as level of significance. In today's world of esthetic conscious individuals, the smile is considered as an important constituent of a person's overall appearance and wellbeing. The smile that we create should appeal in esthetics and should be sound functionally. The dream of achieving a life like prosthesis is possible only if we apply the artistic principles taking into consideration the anatomy and physiology of the face. As the branch of esthetic relies on more subjectivity there are no rigid rules for treatment. Each and every patient is different and requires a different approach.

Introduction

Background and rationale: For times, the aim of dentistry is to achieve a beautiful smile by way of enhancing the biologic and functional features of the teeth such that it at times goes even beyond the natural forms of the specific dental case. Commonly the desires of the patient in achieving a esthetic smile is achieved by creating a harmonious smile blending the esthetic and function through the branch of aesthetic dentistry. With the new revolution of restorative material and the technology, very natural looking smile can be achieved with minimal invasive techniques.(1)

The dentist is the smile architect since he is primarily the one responsible to create a life like restoration that ultimately boosts the confidence of the patient thus allowing a smile without inhibition. Smile improves the facial esthetics. The prime requisite for achieving good dental aesthetics is the harmony in the relation between facial form and tooth shape which should be in the appropriate proportions(2). There are various theories about proportions like the Golden proportion, golden percentage and recurring esthetics dental in this field.

It's not only the smile which a face expresses but a personality which gets expressed through the smile. Hence to achieve a pleasing smile, the knowledge of the personality of the patient plays a key role.by using various restorative methods, patients personality can be expressed. In French the word visage means face, it is from there that the concept of visagism is evolutionised.in this concept, restorations are provided based on the blend of the patients personality with smile.(3) This study will help the clinicians to design the smile of a patient based on his temperament by invocation of customized template for smile designing.

Objective:

This study aims to evaluate and compare the correlation if any between the temperament and proportions of smile using visagism through photography.

Methods:

Ethical aspects

Approval of study has been obtained from the institutional ethical committee with reference number DMIMS(DU)/IEC/2020-21/56.The subjects involved will be informed regarding the study and signed consent will be obtained from the subjects before starting the procedure.

Study design

This will be a cross sectional observational study. Study will be carried out in Department of Prosthodontics, Sharad Pawar Dental College, Sawangi (M), Wardha. Study will be conducted in 6 months. Study comprising of 140 participants from the dental college will be selected.

Inclusion criteria:

- Participant's between18 to 38 years of age.
- Participants with natural dentition in maxillary anterior region.

Exclusion criteria

- Extensive carious lesion, incisal wear, tooth fracture, gingival hyperplasia of the maxillary anterior teeth.
- Previous orthognathic surgery ,orthodontic treatment
- Congenital or surgical defects or any anomalies of the tooth.
- Restoration of maxillary anterior teeth and complete or partial veneer
- Facial asymmetry

Methodology

- All the participants will be given a self-reporting type of questionnaire. Their temperament will be identified after the analysis of the questionnaire.
- Dental proportions (Golden proportions, RED, Golden percentage) will be evaluated by taking the photograph of the patient. A digital camera will be used for capturing the photographs.
- Camera will be fixed at a distance of 60 cm. For capturing photograph patient will be asked to sit upright in a comfortable position so as to obtain a sharp image of the face, from the tip of the nose to the tip of the chin.
- Captured photographs will be transferred to laptop for detail study (with the help of Adobe Photoshop 7), on basis of proportions.

- Once we have the proportions identified they will be co related to evaluate if there exists any correlation between a particular proportion and temperament.
- Accordingly a customized template will be proposed for smile designing of patients with particular temperament.

Results

Results will be calculated on the basis of observations evolved from the identified proportions which will then be co-related to evaluate if there exists any correlation between a particular proportion and temperament. Statistical analysis will be done by using response analysis using CHI square test & Spearman correlation test will be applied for analysis. The software used in the analysis will be SPSS 20.0 version and $p<0.05$ is considered as level of significance.

Discussion

Smile esthetics, because of the individual variation can be considered as a subjective phenomenon. Many authors have described the ideal features of a smile, but this can be subject to variation in different populations in which studies are being carried out. There are two objectives on which the esthetic or beauty is based: objective and subjective. The intrinsic features of the object that is being studied that makes it admirable. Subjective esthetics relies on he subjects or persons who are contemplating it. (4)

In recent times, the main elements of smile analysis and designing are the essentials in treating and planning procedure an individual feels more confident when he has a esthetically pleasing smile that enhances attractiveness thus contributes in boosting one's confidence.(5)

The various methods that can be used for the analysis of the smile includes photograph, video or 3D images of the patients while carrying out the facial analysis .the location of vertical midline is carried out using nasion and filtrum as the anatomical reference points. The major line to be considered in the horizontal plane is the bipupillary line. Many other lines parallel to this line can be considered. The more perpendicular the line is to the vertical lins, the greater the sense of harmony to the face. The maxillary inter-incisal midline and the facial midline should be coincident. If this is not possible, it should at least be parallel to the facial midline. (6)

According to Hippocrates there are four types of temperament i.e choleric, sanguine, melancholic and phlegmatic which makes the personality of the individual unique. The theory which combines the personality of a person and teeth selection is known as Visagism. This is also known as the temperamental theory (7)

The application of visagism in smile designing is done by the geometric analysis of the facial type of the face. In step two the psychological temperament is determined using a questionnaire and finally taking into account the personal preferences. Bansode et. al in 2019 carried out a study To find out as to whether

the concept of Visagism is present in dentate individuals and they concluded that there is a definite correlation between the temperament and the parameters of a smile.(7)

Limitations

Study is restricted to an age group of people between 18 to 38 years of age

Conclusion

We expect a definite co relation between the proportions of smile and the temperament of patients. This study will be able to provide a customised guiding template that can be of help in patients of particular temperament.

Translatory Component

This study will help the clinicians to design the smile of a patient based on his temperament by creating a customized template for smile designing.

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