



## Acceptance Towards Smile Makeover Based on Spa Factor - A Myth or Reality

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### ABSTRACT

Maxillary anterior teeth are of utmost importance as their size and form play an important role not only in facial aesthetics but also dental aesthetics. Aesthetics is one of the primary concerns of patients seeking restorative treatment. Due to this reason, dentists restore maxillary anterior teeth in harmony with the facial appearance of the patients. The aim of the study is to evaluate the incorporation of SPA factor in Fixed dental prosthesis and prevalence of different personalities and its correlation with gender and age. A Cross-sectional, descriptive study was conducted in an institution, on randomly selected individuals. The study group consisted of adult patients who attended the outpatient Department of Prosthodontics from June 2019 - March 2020. Data collection was done and the Chi-square test was used to explore the relationship between two variables. 41% of males accepted treatment. 46% of females accepted treatment. 72% Treatment acceptance was found in the young age group S factor was not followed by 17.8% case, P factor was not followed by 17.3% case, A factor was not followed by 20.4% case SPA plays an important role in the esthetic outcome of the prosthesis, so it should be incorporated in the treatment. More awareness and knowledge is needed for implementation clinically in each and every case. Young adults are more likely to accept esthetic smile makeover treatment, whereas other age groups are not. Accepting maybe because of socioeconomic status or lack of awareness. So it's our responsibility to conduct health education and awareness programs at the society level for patients and also clinical awareness among practitioners to improve the smile quality.



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### INTRODUCTION

Smile is one of the essential facial expressions. It helps in expressing friendliness and appreciation. A pleasant smile gives us greater confidence as well as positive influences our social lives and career. Hence the demand for a pleasant smile increases the demand for esthetics in dentistry, making the role of the prosthodontist significant. A Smile is often considered a person's greatest beauty asset, hence a defective smile may be considered as a physical handicap. According to Tjan et al., (Tjan *et al.*, 1984; Jyothi, 2017) smiles can be classified into three cat-

egories namely, high, average and low. High smile displays the entire cervico-incisal length of the maxillary incisors along with a contiguous band of gingiva whereas a low smile displays less than 75% of the cervico-incisal length. An average smile on the other hand displays 75 to 100% of maxillary incisors with the incisal curvature of the anterior maxillary teeth paralleling the inner curvature of lower lip which may be slightly or touching the lower lip. When designing a smile, the dentist needs to consider factors such as patient's age, face shape, aspirations as well as oral condition. Factors affecting smile design include.

### Age

Aging causes constant changes in oral structures such as teeth, periodontium and teeth. These changes have to be taken into account and incorporated during the oral rehabilitation of the elderly. According to Dong et al., Ahmad et al., (Dong, 1999; Ahmad, 2005) with an increase in age the exposure of maxillary incisors decreases while exposure of mandibular incisors increases. This factor should be taken into consideration during the fabrication of denture to achieve a natural and esthetic appearance.

### Sex (Gender)

Generally, females have rounder teeth, while males have squarish teeth. Females also display nearly twice the amount of maxillary teeth in comparison to males, i.e. 3.4 mm in women as compared to approximately 1.9 mm in men (Vig and Brundo, 1978; Ahmad, 2005).

### Personality

Dong et al, (Dong, 1999; Ganapathy, 2016) investigated the correlation between patients personality and smile. He assumed that the smile of an individual is closely related to their physical and psychological state. According to his research, there was no statistically significant relationship between men's personality and smile while women exhibited some correlation. Hence the artificial teeth of female patients should match their personality trait during denture fabrication as it affects the aesthetic outcome.

Finally, the dawn of the "dentogenic restoration" arrived, and in 1955 Frush and Fischer proposed selection of teeth on the basis of the sex, personality, and age of the patient (Frush and Fisher, 1955, 1956, 1958). Since all patients possessed these three essential factors, namely—sex, personality, and age—researchers reasoned that the "SPA" factor needed to be interpreted to optimize the esthetic appearance of the prosthesis (Stein and Stein, 1936;

Subasree et al., 2016). According to Frush, an ideal dentogenic prosthetic restoration should create psychologic as well as physiologic comfort for the patient and therefore requires a proper interpretation of the sex, personality, as well as the age of the patient. This is done through a detailed consideration of the denture tooth and its position, which, if done properly by the dentist, reveals the personality as well as the physiologic age of the patient. This, in turn, will give the edentulous patient teeth that have a natural and authentic appearance (Stein and Stein, 1936; Vijayalakshmi and Ganapathy, 2016).

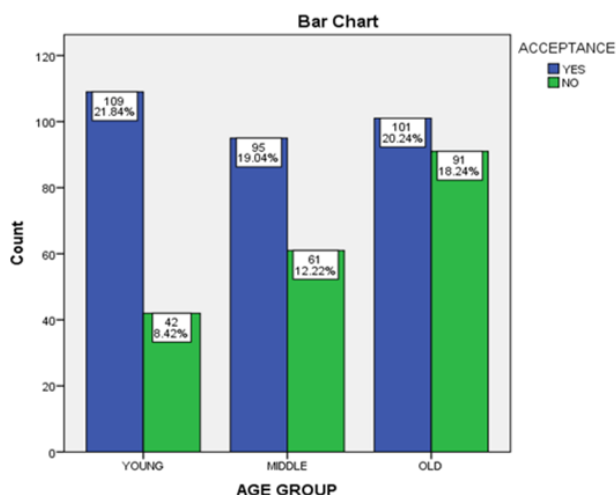
During personality selection, a "delicate" mold is feminine while a "vigorous" mould is masculine. A medium-pleasing personality mold can be made more masculine by squaring the incisal edges. The SPA factor—evaluation of sex, personality, and age of patient—was first summarized by Sears in the year 1941 in his concept of esthetic dental prosthetics (Sears, 1941, 1952; Frush and Fisher, 1955). When the lateral incisors are nearly as broad as the front teeth, the set is presumed to have a strong or masculine appearance while when the laterals are narrower than the average, the set is considered feminine. According to Sears teeth selection was done on two basis. "Strong" denoted "large" or "square," teeth while "Delicate" denoted "rounded" or "smaller." teeth. Frush believed that a dentogenic restoration would give the denture wearer mental well being and comfort (Stein and Stein, 1936). In general, females have a soft personality hence the teeth are made round and smooth while males have a vigorous personality hence their teeth are made cuboidal and hard representing their personality. A hardened smile is usually achieved for a male with a vigorous personality by rotating the lateral incisor mesially. Sex identity in a denture is usually achieved by sculpting a tooth to denote either vigour or delicacy. In the spectrum of human personalities (Stein and Stein, 1936; Ashok and Suvitha, 2016). "A rugged, male extrovert would fit into the red end of the spectrum, while a shy female would lie at the other end of the spectrum and an individual with a normal personality, would lie in between. According to many authors, the form of upper anterior teeth can be decided by the sex of the patient among many other factors. Although the theory of the law of harmony has never been proven, contemporary methods used to pick tooth molds support these principles. The trubyte tooth indicator uses the patient's forehead, the base of the nose, and prominent point of the chin to evaluate the patient's facial profile. Based on these three points, the profile can either be straight, concave, or convex (Davis, 2007; Kumar, 2011). The labial surface of the tooth

viewed from the mesial shows a contour similar to the patient's profile. The labial surface of the tooth, when viewed from the incisal side, shows a convexity similar to that seen when the patient's face is viewed from under the chin or top of the head.

It has never been proven that matching the teeth with a patient's sex, personality, and age [SPA factor] results in an ideal esthetic appearance (Basha et al., 2018; Ganapathy et al., 2018). However, there's little scientific data available within the dental literature which can be used for outlining the right size and shape of anterior teeth or determining the normal relationships between them. Therefore, the current study attempts to answer the following questions: Are the concepts of the dental esthetic appearance of dentists similar to those of patients which is still questionable.

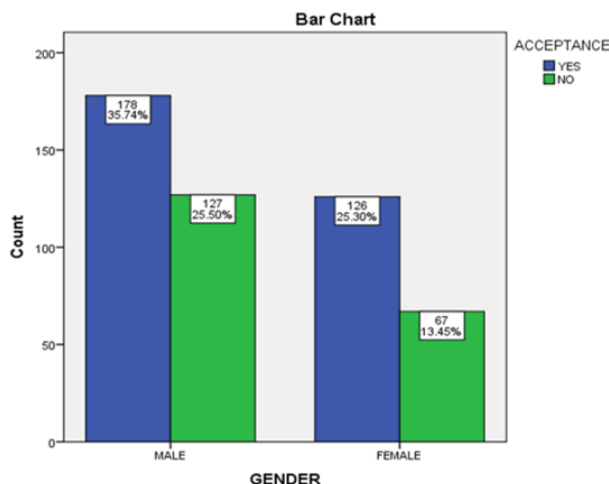
**MATERIALS AND METHODS**

The study setting for this study is university study setting which was done on Indian population to study the correlation between acceptance of treatment, personality and SPA factor with the demographic variables and evaluation of anterior Fixed partial denture cases done by dentists based on SPA factor. Approval for the study was taken from the ethical board of Saveetha Institute of Medical and Technical Sciences [SIMAT]. There were two reviewers involved to examine the results of the study.

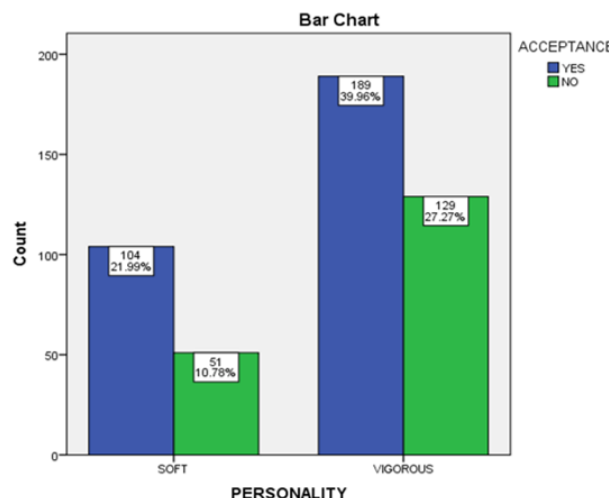


**Figure 1: Bar graph depicting the association between the age group and acceptance of treatment. (Pearson Chi-Square value=13.64, p value<0.05)**

The data included in the study was from JUNE 2019-MARCH 2020. 6589 case sheets were reviewed out of which 780 had anterior missing teeth. Cross verification of data was done through telephonic & photographic information. Measures which are taken



**Figure 2: Bar graph depicting the association between the gender and acceptance of treatment. (Pearson Chi-Square value=0.88, p value>0.05)**



**Figure 3: Bar graph depicting the association between the personality (soft/vigorous) and acceptance of treatment (Pearson Chi-Square value=2.5, p value>0.05)**

to minimize sampling bias are simple random sampling and second reviewer to evaluate. The sample size which was selected was 500.

Data collection from the database of Saveetha dental college. Patients who reported in the Department of Prosthodontics were selected for the study. Google sheet tabulation and SPSS importing of the data was done.

Descriptive statistics test was performed. Software used - SPSS version 26 was used. Independent variable being race and time; Dependent variable being Age, sex and socioeconomic status. Chi-Square test was used to evaluate the data.

**Table 1: Showing S factor was not followed by 17.8% case, P factor was not followed by 17.3% case. A factor was not followed by 20.4% case.**

The validity of Spa Factor In FPD Cases			
Spa Factor	Sex	Personality	Age
No	17.8%	17.3%	20.4%
Yes	82.2%	82.7%	79.6%

**Table 2: This table represents the correlation of SPA factor with age groups and gender**

Correlation of Spa Factor With Age Groups and Gender		CHI Square Value	Degree of Freedom	P-Value
Age Groups (Young, Middle, Old)	S	2.16	2	0.339
	P	1.68	2	0.432
	A	3.81	2	0.149
Gender	S	27.51	1	0.001*
	P	25.83	1	0.001*
	A	0.88	1	0.348

(\*Statistically significant)

**Table 3: This table represents the association between age group, gender and personality with acceptance of treatment**

Correlation of Age Group, Gender and Personality With Acceptance of Treatment					
		Acceptance			Statistical Values
		YES	NO	Total	
Age Group	Young	109	42	151	Pearson Chi-Square=13.643 P value=.001*
	Middle	95	61	156	
	Old	101	91	192	
	Total	305	194	499	
Gender	Male	108	152	260	Pearson Chi-Square=.743 P value=0.389
	Female	80	95	175	
	Total	188	247	435	
Personality	Soft	69	74	143	Pearson Chi-Square=2.083 P value=0.149
	Vigorous	120	173	293	
	Total	189	247	436	

(\*Statistically Significant)

## RESULTS AND DISCUSSION

72% treatment acceptance was found in the young age group, S factor was not followed by 17.8% case, P factor was not followed by 17.3% case, A factor was not followed by 20.4% case (Table 1). There is an association between gender and S-factor and P-factor [ $p < 0.05$ ] (Table 2).

There is more acceptance of smile makeover treatment in the young age group and least in the old age group. There is a significant association of age groups with acceptance of treatment (Pearson Chi-Square value=13.64,  $p$  value  $< 0.05$ ) (Figure 1). There is more acceptance of treatment in males

as compared to females. However, there is no statistically significant association between gender and acceptance of treatment (Pearson Chi-Square value=0.88,  $p$  value  $> 0.05$ ) (Figure 2). There is more acceptance of treatment in a vigorous personality as compared to soft personality. However, there is no significant association between personality (soft/vigorous) and acceptance of treatment (Pearson Chi-Square value=2.5,  $p$  value  $> 0.05$ ) (Figure 3, Table 3).

Dentistry is an amalgamation of science and art (Ajay, 2017). Dentogenic theory by Frush was inspired by the work of Zech. Zech, a sculptor, often helped his father, who was a dentist. He

experimented with various moulds and formed teeth which fit the patient's personality. Soft, rounded teeth were made for women while larger, more irregular teeth were made for men. Zech changed Frush's views on dentures and introduced aesthetics as a vital factor. Very little research has been done on the validity of the SPA factor in the Indian population. Two key factors have to be taken into consideration to achieve an aesthetic smile. The first factor is that esthetics is a variable factor and not universal. It usually depends on various factors such as age and race of the individual. The second factor is that the treatment plan is greatly influenced by the patient's wishes and financial resources. The limitations of this study are that it was done on less sample size hence it can be done in more samples to get more accurate data. The pictorial observation was done if clinical observation might have a different impact. In my opinion, a dentist should not only follow the SPA factor but should take a holistic approach towards the esthetic treatment of the patient.

## CONCLUSION

SPA plays a vital role in the esthetic outcome of the prosthesis, so it should be incorporated in the treatment. More awareness and knowledge is needed for implementation clinically in each and every case. Young adults are more likely to accept esthetic smile makeover treatment, whereas other age groups are not. Accepting maybe because of socioeconomic status or lack of awareness. So it's our responsibility to conduct health education and awareness programs at the society level for patients and also clinical awareness among practitioners to improve the smile quality.

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## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

## REFERENCES

Ahmad, I. 2005. Anterior dental aesthetics: Dentofacial perspective. *British Dental Journal*, 199(2):81-88.

Ajay, R. 2017. Effect of surface modifications on the retention of cement-retained implant crowns under fatigue loads: An In vitro study. *Journal of Pharmacy And Bioallied Sciences*, page 154.

Ashok, V., Suvitha, S. 2016. Awareness of all ceramic

restoration in rural population. *Research Journal of Pharmacy and Technology*, 9(10):1691.

Basha, F. Y. S., Ganapathy, D., Venugopalan, S. 2018. Oral Hygiene Status among Pregnant Women. *Research Journal of Pharmacy and Technology*, 11(7):3099.

Davis, N. C. 2007. Smile Design. *Dental Clinics of North America*, pages 299-318.

Dong, J. K. 1999. The esthetics of the smile: a review of some recent studies. *The International journal of prosthodontics*, 12(1):9-19.

Frush, J. P., Fisher, R. D. 1955. Introduction to dentogenic restorations. *The Journal of Prosthetic Dentistry*, 5(5):586-595.

Frush, J. P., Fisher, R. D. 1956. How dentogenic restorations interpret the sex factor. *The Journal of Prosthetic Dentistry*, 6(2):160-172.

Frush, J. P., Fisher, R. D. 1958. The dynesthetic interpretation of the dentogenic concept. *The Journal of Prosthetic Dentistry*, 8(4):558-581.

Ganapathy, D. 2016. Effect of Resin Bonded Luting Agents Influencing Marginal Discrepancy in All Ceramic Complete Veneer Crowns. *Journal of clinical and diagnostic research*, 10(12):67-70.

Ganapathy, D. M., Kannan, A., Venugopalan, S. 2018. Effect of Coated Surfaces influencing Screw Loosening in Implants: A Systematic Review and Meta-analysis. *World Journal of Dentistry*, 8(6):496-502.

Jyothi, S. 2017. Periodontal Health Status of Three Different Groups Wearing Temporary Partial Denture. *Research Journal of Pharmacy and Technology*, page 4339.

Kumar, M. V. 2011. The Science of Anterior Teeth Selection for a Completely Edentulous Patient: A Literature Review. *The Journal of Indian Prosthodontic Society*, pages 7-13.

Sears, V. H. 1941. Selection of Anterior Teeth for Artificial Dentures. *The Journal of the American Dental Association*, 28(6):928-935.

Sears, V. H. 1952. New teeth for old. *Science Education*, 110:249.

Stein, M. R., Stein, M. 1936. Williams' Classification of Anterior Tooth Forms Read before the International Association of Dental Research. *The Journal of the American Dental Association*, pages 1512-1518.

Subasree, S., Murthykumar, K., Dhanraj 2016. Effect of Aloe Vera in Oral Health-A Review. *Research Journal of Pharmacy and Technology*, 9(5):609.

Tjan, A. H., Miller, G. D., The, J. G. 1984. Some esthetic factors in a smile. *The Journal of Prosthetic Dentistry*, 51(1):24-28.

Vig, R. G., Brundo, G. C. 1978. The kinetics of anterior tooth display. *The Journal of Prosthetic Dentistry*, 39(5):502-504.

Vijayalakshmi, B., Ganapathy, D. 2016. Medical management of cellulitis. *Research Journal of Pharmacy and Technology*, 9(11):2067.