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Original Article

Assessment of Different Shade Value according to Age, Skin Color and Gender- A Clinical Study

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***ABSTRACT*:**

Background: Teeth selection is not simply a mechanical procedure, but requires dexterity and knowledge of biology. Selection of teeth forms an important step before teeth arrangement. The present study was conducted to determine different shade value in both genders of different age groups. **Materials & Methods:** This study was conducted on 84 subjects of both genders. Subjects were divided into 2 groups. Group I included 42 subjects in age range of 20-40 years and group II had 42 subjects in age range from 40- 60 years. The shade of middle third of the labial surface of permanent maxillary left or right central incisor was recorded. The lightness value was selected. Starting from the darkest group, the appropriate value group – 1, 2, 3, 4 or 5 was recorded. Skin color of all subjects was matched using the Radiance compact makeup shades as a guide which was either, light, medium and dark. **Results: A**ge group 20-40 years had 30 males and 12 females and age group 40-60 years had 16 males and 26 females. The difference was non- significant (P-0.1). Shade value 2 was seen in maximum number of subjects (males- 24, females- 20) followed by value 3 (males- 8, females- 10), value 1 (males- 10, females- 6), value 4 (males- 24, females- 20) and shade value 5 was not seen in any subject. The difference was non- significant (P-0.01). The maximum number of light skin subjects (12) medium (16) subjects and dark skin subjects (14) had shade value 2 followed by shade value 3 seen in light skin subjects (5) medium (10) subjects and dark skin subjects (15). The difference was non- significant (P< 0.05). **Conclusion:** There is influence of age on shade value. Shade value 2 was observed in maximum number of subjects. Maximum subjects had medium skin color.

Key words: Radiance, Shade, Teeth.

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INTRODUCTION

Increasing dental awareness among the general population in developing countries has led to increased demand for esthetic restorations. Hence, it becomes all the more pertinent now, more than ever before, to provide restorations which defy detection. Teeth selection is not simply a mechanical procedure, but requires dexterity and knowledge of biology. Selection of teeth forms an important step before teeth arrangement. The aim is to create a dentofacial harmony. An acceptable cosmetic effect in any dental restoration has always been regarded as important to good dentistry. A well-made prosthesis will fail if it is deficient in this respect.[1]

Selection of tooth shades based on natural anterior teeth is influenced by many factors. Light under which the shade is viewed is a major factor. Clinical skill of the operator and shade guide system used, play an important role in the shade selection process. Staining due to various factors, both extrinsic and intrinsic, have a direct impact on altering tooth shades.[2]

According to Young, esthetics is apparent that beauty, harmony, naturalness and individuality are major qualities" of esthetics. The dentist must visualize esthetics in relation to the patient and then translate that visualization into an acceptable esthetic result. The success of Dentist efforts depends upon his artistic ability, his powers of observation and his experience.[3]

Some of the extrinsic factors are diet, smoking, xerostomia, and restorations. Intrinsic factors include congenital defects of enamel or dentin such as amelogenesis and dentinogenesis imperfecta, environmental factors such as tetracycline staining, traumatic injury, dental caries, and aging. In spite of all the factors mentioned above, the selection of artificial tooth shade to replace missing natural teeth is a relatively simple procedure when few natural anterior teeth remain. However, for the edentulous individual when no pre extraction records are available, the choice of tooth shade is a subjective process. A perception among dentists has been that individuals with darker skin colors have lighter shades of teeth.[4] The present study was conducted to determine different shade value in both genders of different age groups.

MATERIALS & METHODS

It included 84 subjects of both genders. All were informed regarding the study and written consent was obtained. Ethical approval was taken from institutional ethical committee. Patient with RC treated teeth, central incisors with carious lesions, intrinsic or extrinsic staining due to diet, smoking and tobacco chewing etc. were excluded.

General information such as name, age, gender etc. was recorded. Patients were divided into 2 groups. Group I included 42 subjects in age range of 20-40 years and group II had 42 subjects in age range from 40- 60 years.

The shade of middle third of the labial surface of permanent maxillary left or right central incisor was recorded using the Vitapan 3D‑Master shade guide. Subjects were viewed at eye level. Shade tabs were moistened before recording the shade of the teeth. The lightness value was selected. Starting from the darkest group, the appropriate value group – 1, 2, 3, 4 or 5 was recorded. Skin color of all subjects was matched using the Radiance compact makeup shades as a guide which was either, light, medium and dark. Various shades of the makeup were arranged into corresponding skin color groups as follows: "Light" skin color group included the "natural pearl" shade of the makeup; "medium" skin color group included the "natural shell" and "dark" skin color group included the "Natural coral" of the makeup. Results thus obtained were subjected to statistical analysis using chi- square test. P value < 0.05 was considered significant.

RESULTS

Table I Age & Gender distribution of subjects

Age group	Males	Females	P value
20-40 years	30	12	
40-60 years	16	26	0.1
Total	46	38	

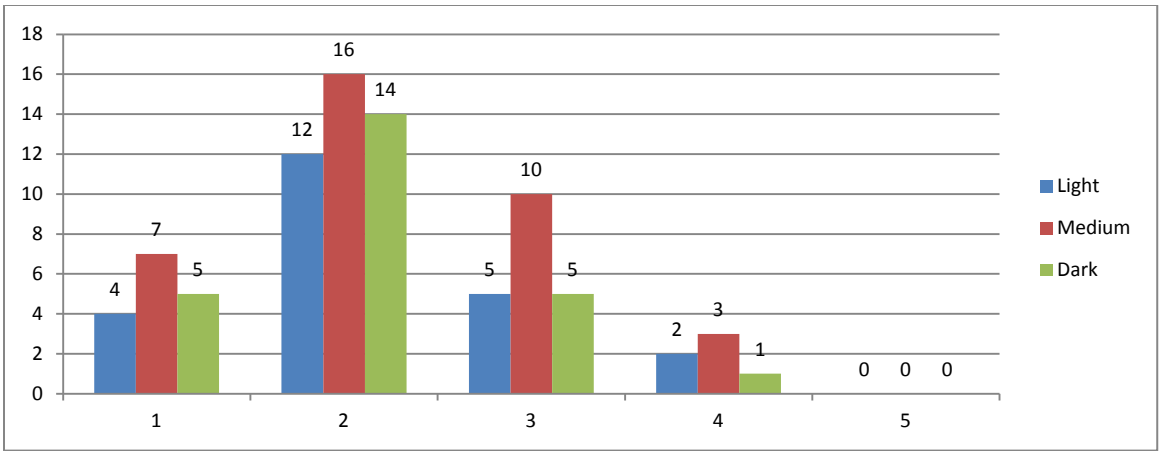
Table I shows that age group 20-40 years had 30 males and 12 females and age group 40-60 years had 16 males and 26 females. The difference was non- significant (P-0.1).

Table II Distribution of subjects according to shade value

Shade value	Males	Females	P value
1	10	6	
2	24	20	0.01
3	8	10	
4	4	2	
5	0	0	
Total	46	38	

Table I shows that shade value 2 was seen in maximum number of subjects (males- 24, females- 20) followed by value 3 (males- 8, females- 10), value 1 (males- 10, females- 6), value 4 (males- 24, females- 20) and shade value 5 was not seen in any subject. The difference was non- significant (P-0.01).

Graph I Distribution of subjects according to shade value and skin color



Graph I shows that maximum number of light skin subjects (12) medium (16) subjects and dark skin subjects (14) had shade value 2 followed by shade value 3 seen in light skin subjects (5) medium (10) subjects and dark skin subjects (15). The difference was non- significant (P< 0.05).

DISCUSSION

Knowledge of physics, physiology, and psychology of colour is valuable in the selection of teeth colour. Hue, saturation, colour of teeth, brilliance, and translucency are the parameters to select colour of the tooth. Hue is the specific colour produced by a specific wavelength of light acting on the retina. The hue of teeth must be in harmony with the colour of patients face. Saturation is the amount of colour per unit area of an object.[5] Brilliance is the lightness or darkness of an object. People with fair complexion generally have teeth with less colour and the Colours are less saturated. Thus, the teeth are lighter and in harmony with the colours of the face. People with dark complexions generally have darker teeth that are in harmony with the colour of the face. Maxillary central incisors are lightest teeth in the mouth, maxillary laterals and mandibular incisors are slightly darker. Canines are still darker. Posterior teeth are usually uniform in colour and slightly lighter than canines. Teeth darken with age.[6] The present study was conducted to determine different shade value in both genders of different age groups.

We found that males were 46 and females were 38. Shade value 2 was seen in maximum number of subjects (males- 24, females- 20) followed by value 3, value 1, value 4 and shade value 5. This is similar to Esan et al.[7] We observed that maximum number of light skin subjects (12) medium (16) subjects and dark skin subjects (14) had shade value 2 followed by shade value 3 seen in light skin subjects (5) medium (10) subjects and dark skin subjects (15). Maximum subjects were of medium color (36), light (23) and dark (25). This is in agreement with Hasegawa et al.[8]

Shade should harmonize with the shade of the anterior teeth. Bulk influences the shade of the teeth and for this reason it is advisable to select a slightly lighter shade for the bicuspids if they are to be arranged for aesthetics. They may be slightly lighter than the other posterior teeth but not lighter than anterior teeth.

There is beauty in age as well as in youth, but in fact age has the edge. It is routine first to consider light shades for young people and darker shades for older ones. Age in the artificial tooth must also be accompanied by mold refinement. In the artificial tooth, we may reflect the appropriate age effects by such means as grinding the incisal edges and removing the incisal enamel at such an inclination and to such depth as to convey reality to the composition. The sharp tip of cuspid suggests youth and as age increases it should be judiciously shaped, not abruptly ground so as it imply abrasion against opposing teeth. The erosion imparted to artificial teeth by careful grinding and polishing very efficiently conveys the illusion of vigour and advanced age. It has been suggested the color of the face should be the basic guide to tooth color.[9] Specifically, it is suggested the value of the teeth must correspond to darkness or lightness of the facial skin color.

CONCLUSION

Author found that shade value 2 was observed in maximum number of subjects. Maximum subjects had medium skin color. There is influence of age on shade value.

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