

EVALUATION AND KNOWLEDGE OF PATIENT'S PREFERENCES REGARDING SHADES OF ARTIFICIAL TEETH

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ABSTRACT

Aim & Objectives- To ensure a successful aesthetic outcome of a dental treatment, proper shade selection becomes a crucial step. The most important aspect after any dental procedure is patient satisfaction. The study aims to evaluate a patients aesthetic preferences regarding shades of artificial teeth

Materials & Methods- A cross sectional picture based survey was conducted in india among general population using a picture based questionnaire. The questionnaire was circulated to 1248 people out of which 454 people responded. The shades which were sent to the subjects for selection were according to the vita teeth shade guide.

Results & Conclusion- A total of 454 responses were gathered, out of which the highest number of people preferred A1 shade(43.0%). People have a perception that whiter teeth look more aesthetic. People prefer whiter teeth in contrast to darker shades, which may be more natural looking. Hence patient perception needs to be taken into consideration during shade matching.

KEYWORDS

Patients preference, Teeth Shade, Aesthetics, Artificial teeth, Perception

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Introduction

The main aim of restorative dentistry is to restore the form, function and esthetics of the dentition and maintain the occlusal equilibrium^[1]. In the recent decade, dental esthetics has been given utmost importance in any dental treatment plan. Hence, in any restorative procedures, the main goal should be selection of the restoration, such that it blends with the adjacent teeth, giving a natural appearance^[2]. Selection of teeth is an important topic that has received major attention from researchers since esthetic dentistry started gaining popularity^[3]. Shade selection is not just a mechanical procedure, but requires dexterity and knowledge of tooth morphology and colours^[4]. An acceptable cosmetic effect in any dental restoration has always been regarded as important to good dentistry^[1].

While selecting teeth there are many factors which a dentist needs to take into consideration, like colour of the skin, colour of the eyes, colour of the hair^[5] etc. There is a general perception among dentists that a patient with darker skin has a whiter teeth shade and vice-versa^[6]. This is due to the illusion of higher contrast seen between the teeth shade and the colour of the skin. Age^[7] and gender^[8] of the patient also plays an important role in the selection of shade. It is generally seen that with the increase in age, the teeth become more yellow^[8,9]. Previous literature has also reported that men have a higher chance of teeth being

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yellowish as compared to women^[7,10,11]. There are certain factors which are ignored, but can alter the overall outcome drastically. One such factor is the source of light^[12].

The Shade selection highly depends on the skill and precision of the clinician and the shade guide used^[10]. Another factor which can alter the results is the presence of extrinsic or intrinsic staining.

For a successful treatment, it is important to have a mutual consensus between the dentist and the patient. There might be a difference in opinion regarding the perception of esthetics. The significance of a patient's perception towards tooth shade is something which cannot be overlooked. Hence, this study is done to evaluate the patient's aesthetic preferences regarding shades of artificial teeth.

Materials and Methods

A cross sectional picture-based questionnaire survey was conducted among different people in India during June 2018. The questionnaire was formulated using Google

forms. A total of 1248 subjects were sent an online questionnaire comprising questions regarding the participant's details (age and gender) and patients' aesthetic preference regarding artificial teeth shades. The questionnaire consisted of a single picture-based question. Out of 1248 subjects 454 subjects responded.

Validation was done among post graduate students of the Department of Prosthodontics in Saveetha Dental College. The survey was sent online to individuals and they filled the questionnaire out of their free will. Guidelines were followed as per the Helsinki declaration^[13].

All the data was collected in Google sheets and analysed using SPSS 21 (SPSS Inc., Chicago, IL). Chi square test was done to statistically analyse the data and visual representations of the data were plotted with the extracted data. The independent variables in this survey would be the age and gender of the subjects and the dependent variables would be the preference of tooth shade chosen by the subjects.

Results And Discussion

Dental appearance plays an important role in improving the overall appearance of a person^[14]. Shade selection should be done such that it compliments the other factors like the colour of the skin and the colour of the hair. For an accurate shade matching, it is important to understand the concepts about hue, chroma and value. Hue can be defined as the actual representation of a particular colour. Chroma can be defined as the degree of saturation of the hue. Value can be defined as the lightness or darkness of a particular colour. Black et al in his study reported that out of the three attributes, value was the most important for a successful shade matching^[15].

In the present study, it is observed that maximum subjects preferred A1 shade (43.0%), followed by B1 shade (25.1%) and A2 shade (22.9%), whereas, the least preference was seen for D2 shade (0.7%) and C2 shade (0.2%).

It can also be observed that all the age groups of population preferred A1 shade. In the age group of 20-40 years and >60 years, the population preferred B1 shade more than A2 shade. In the age group of 40-60 years, the population preferred A2 shade more than B1 shade. All the age groups showed the least preferences for the C and D shades.

It can also be observed that both the gender groups preferred A1 shade, followed by B1 shade and A2 shade and showed the least preference for C2 shade and D2 shade.

The reason can be due to the people's belief that whiter teeth look more esthetic and pleasing. This could be a result of lack of knowledge about tooth shade matching with other factors like colour of the skin, colour of the hair etc. Adequate knowledge on tooth shade matching can give the patients better idea about which shade to select. These results are supported by much literature. It has been observed that most of the patients prefer whiter teeth, and hence they use whitening agents^[16]. Previous literature has reported that a layperson has a higher preference for whiter teeth than a clinician^[17,18]. Samorodnitzky Naveh and colleagues conducted a study in the U.S and reported that only 43 percent of the population were satisfied with the

shade of their tooth colour, and out of the people who were dissatisfied with the shade of their tooth colour, 88 percent preferred a whiter shade as compared to their tooth colour^[19]. In another study by Vallittu and colleagues, reported that younger populations who were not very educated preferred whiter teeth^[20]. In some other studies, images were edited digitally and shown to dentists and the general population. It was seen that the general population preferred a whiter tooth shade as compared to dentists^[17,18].

Although this study has shown that most of the people showed a higher preference for whiter teeth, this study has certain limitations. Firstly, the number of subjects who responded were very less. Hence, the outcome cannot be generalised for the population. Secondly, the shades were given with respect to one skin colour. Hence, there is a possibility that the outcome may show some variation if the subjects are shown the tooth shades with the change in skin colour.

Conclusion

Within the limitations of the study, it can be evidently concluded that there was a fixed mind set of most people that whiter teeth look more esthetic. It is important for dentists to understand the misconceptions about tooth shade matching. Education camps should be held for this target population for them to know about selection of different teeth shades for different people. More surveys should be conducted to evaluate the patient's perspective regarding aesthetics with artificial teeth. Hence, it is important for a dental practitioner to understand the patient's mindset and take his opinion into consideration during shade matching.

Authors Contribution

Aman Merchant: Manuscript editing, Literature search, data collection

Deepak Nallaswamy & Vinay Sivaswamy: Data Analysis, manuscript editing

Vaishnavi Rajaraman: Manuscript drafting

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Conflict of Interest All the authors declare no conflict of interest

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Tables And Legends

Shade Preference		
Shades	Frequency	Percentage of preference
A1 Shade	195	43.0%
A2 Shade	104	22.9%
A3 Shade	14	3.1%
A4 Shade	10	2.2%
B1 Shade	114	25.1%
B2 Shade	7	1.5%
C1 Shade	6	1.3%
C2 Shade	1	0.2%
D2 Shade	3	0.7%
Total	454	100 %

Table 1: Table representing the frequency of preference of different teeth shades.

	SHADES											CHI SQUARE VALUE	P VALUE
		A1	A2	A3	A4	B1	B2	C1	C2	D2			
AGE	30-40 years	44.5%	20.6%	4.3%	2.4%	24.9%	0.5%	1.4%	0.5%	1.0%	14.704	0.546	
	41-60 years	41.3%	26.4%	2.4%	2.4%	24%	1.9%	1.0%	0.0%	0.5%			
	>60 years	43.2%	16.2%	0.0%	0.0%	32.4%	5.4%	2.7%	0.0%	0.0%			
GENDER	Male	45.1%	23.0%	2.7%	1.8%	23.9%	1.3%	1.3%	0.4%	0.4%	2.884	0.941	
	Female	40.8%	22.8%	3.5%	2.6%	26.3%	1.8%	1.3%	0.0%	0.9%			

Table 2: Table representing the association between the preference of tooth shade with age and gender.

Figures And Legends

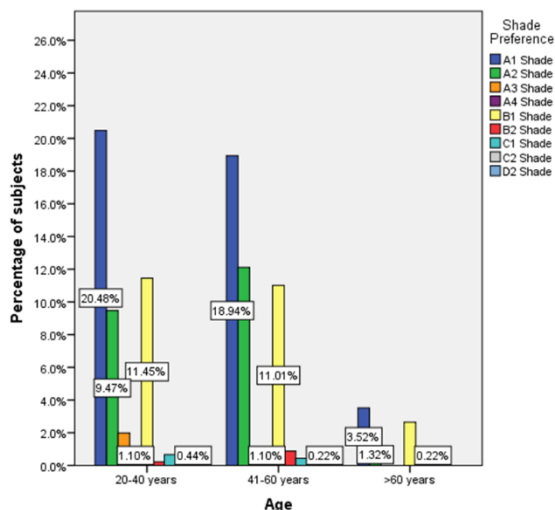


Figure 1: Graph representing the association between the preference of different tooth shades and age. There is no statistical association between the preference of tooth shades and age (Chi square value: 14.704; p value: 0.546 (p>0.05))

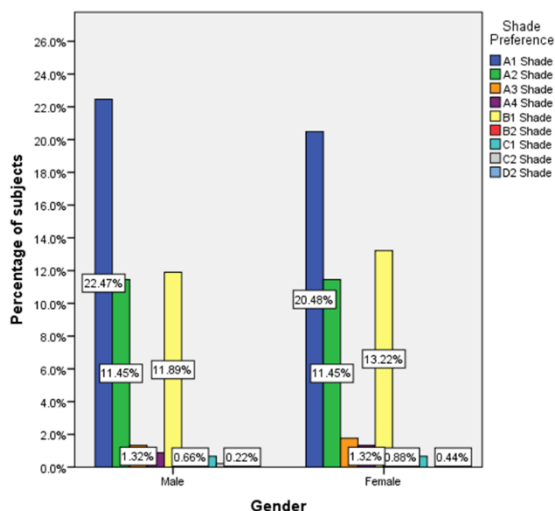


Figure 2: Graph representing the association between the preference of different tooth shades and gender. There is no statistical association between the preference of tooth shades and gender (Chi square value: 2.884; p value: 0.941 (p>0.05))