



## KNOWLEDGE ABOUT SHADE SELECTION AMONG GENERAL DENTAL PRACTITIONERS IN DAKSHINA KANNADA: A QUESTIONNAIRE BASED STUDY

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### ABSTRACT

**Introduction:** Selection of tooth shade is a very important step in esthetic dentistry as it is the final step and crucial step in the treatment outcome. As there are many complexions in natural tooth shades and patients are more conscious about their esthetics, so knowledge about shade selection among the regular practitioners is very important to satisfy patient with appropriate shade.

**Aim:** To evaluate the knowledge of shade selection of dental practitioners in Dakshina Kannada district  
**Materials and Methods:** Questionnaire based survey is designed. All the Questions check the knowledge of the general dental practitioners. Soft copies of questionnaires will be distributed among general dental practitioners belonging to Dakshina Kannada district

**Results:** Most (85.4%) of the participants knew that the dentist's eye should be at the level of patients tooth for accurate shade matching. Most (84.8%) of the participants knew at what time of the appointment shade selection should be done. Most (70.9%) of the participants that shade selection should be done quickly. Most (64.2%) of the participants use vita classic shade guide regularly. Most (92.7%) of the participants follow visual method of shade selection. Only few (41.7%) of the participants knew which basic property should be selected first. Most (73.5%) of the participants knew the factors effecting shade selection. Only few (30.5%) of the participants knew that shade tabs should be placed above or below the tooth to be compared. Most (89.4%) of them knew that tooth should be cleaned before shade selection. Most (80.4%) of the participants knew that shade selection should be done when tooth is in hydrated state. Very Few (12.6%) of them knew that 28-33 cm distance should be maintained while shade selection. Only Few (29.8%) participants knew that we should wait for 2-3 weeks after bleaching procedure to do shade selection. Most (70.2%) of the participants knew that enamel translucency is reduced when teeth is dehydrated. Most (70.9%) of the participants knew that tooth should be divided into 3 regions during shade selection.

**Conclusion:** Within the limitations of this study, the knowledge regarding shade selection was found to be adequate among general dental practitioners in Dakshina Kannada. However, it is seen that there is relative lack of knowledge regarding property of color, placement of shade tabs of shade guide, distance between clinician and patient during shade selection and waiting period for shade selection after bleaching. Therefore, various seminars, continuous dental education programs or workshops should be conducted so as to increase their awareness of shade selection.

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### INTRODUCTION

Selection of shade is one of the important part of restorative dentistry. patient will be not be satisfied if there is no perfect match in restored teeth and natural teeth as the difference can be seen easily . There are many shade guides available for appropriate shade matching which helps in selection of shade<sup>1</sup>. There are many factors that affect shade selection by a dentist which include light source , intensity and nature of light under which dentist views the tooth<sup>2</sup> ,early appointments should be given so that shade can be selected in natural day light, patient make up may interfere with the shade of tooth<sup>3</sup>. to select an appropriate shade dentist should have knowledge of shade guides as there are so many different shades in shade guide and, placement of tabs of shade guide which may cause error

in selection of shade due to improper placement, dentist should have idea of properties of colour which one to select first and there are so many other criteria's to be considered / effect the selection of shade. Hence a thorough knowledge of selection of shade is important. Therefore, this study was conducted to evaluate the knowledge about shade selection among the general dental practitioners in Dakshina Kannada by means of questionnaire.

### MATERIALS AND METHODS

This present study was a cross- sectional study questionnaire-based survey conducted among general dental practitioners in Dakshina Kannada. A 14-item questionnaire was included in the study to assess knowledge of dental practitioners about selection of shade of a tooth. The questionnaire was in English

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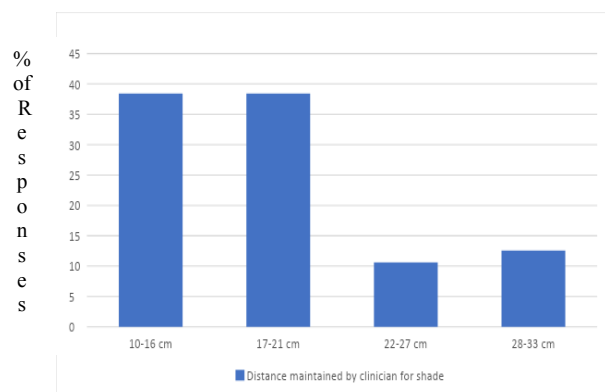
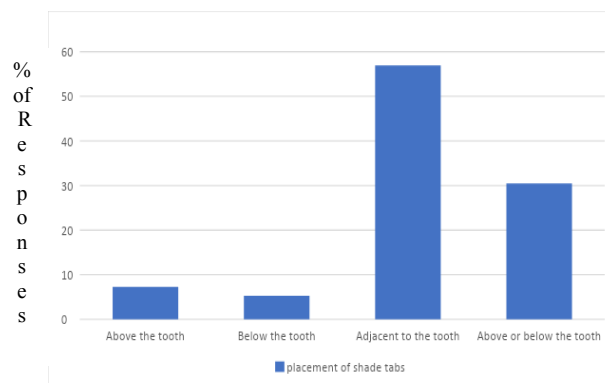
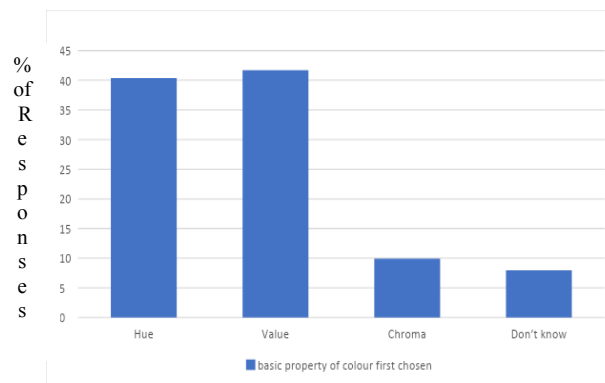
language and open ended and self-administered. The Ethical approval was obtained from the Ethics committee KVG dental college Sullia, Dakshina Kannada. The questionnaire was circulated in the form of Google forms through social media platforms of dental practitioners in Dakshina Kannada. A total of 151 responses were included in the study.

## RESULTS

Some important observations are presented in the form of bar graphs below. Most (85.4%) of the participants knew that the dentist's eye should be at the level of patients tooth for accurate shade matching. Most (84.8%) of the participants knew at what time of the appointment shade selection should be done. Most (70.9%) of the participants that shade selection should be done quickly. Most (64.2%) of the participants use vita classic shade guide regularly. Most (92.7%) of the participants follow visual method of shade selection. Only few (41.7%) of the participants knew which basic property should be selected first. Most (73.5%) of the participants knew the factors effecting shade selection.

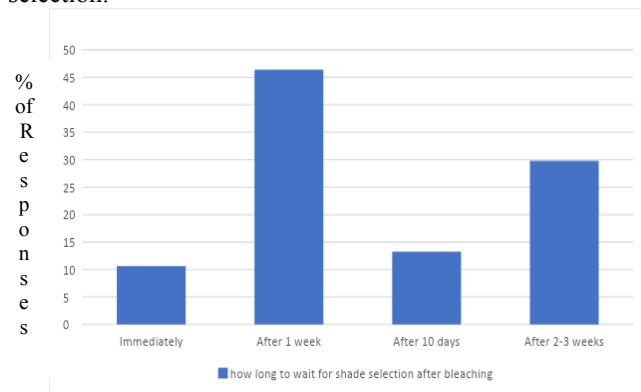
Questionnaire	%, n (number of responses)
1. For shade matching the dentist's eye should be at what level to view the tooth? The dentist's eye should be at the level of the patient's tooth.*	85.4%,n=129
The dentist's eye should be below the level of the patient's tooth.	3.3%,n=5
The dentist's eye should be above the level of the patient's tooth.	8.6%,n=13
Don't know	2.6%,n=4
2. At what time of the appointment the shade selection should be done? At Beginning*	84.8%,n=128
In the Middle	4.6%, n=7
At the end	10.6%,n=16
Don't know	0%,n=0
3. Shade selection should be done quickly or not? It should be done quickly*	70.9%,n=107
It should be done slowly	20.5%,n=31
Any of the above	6.6%,n=10
Don't know	2%,n=3
4. Which type of shade guides are you using? Vita classic shade guide	64.2%,n=97
Vita linear shade guide	4%,n=6
Vitapan 3D master shade guide	19.9%,n=30
None of the above	11.9%,n=18
5. Which type of shade selection is done in your regular practice? Visual method	92.7%,n=140
Instrumental method	2.6%,n=4
Any of the above	4%,n=6
None of the above	0.7%,n=1
6. What basic property of colour would you choose first while shade selection? Hue	40.4%,n=61
Value*	41.7%,n=63
Chroma	9.9%,n=15
Don't know	7.9%,n=12
7. What are the factors affecting visual shade selection? Light source	25.8%,n=39
Dentist's age	0.7%,n=1
Patients make up	0%,n=0
All of the above*	73.5%,n=111
8. During the shade comparison where should be the shade tabs placed? Above the tooth	7.3%,n=11
Below the tooth	5.3%,n=8
Adjacent to the tooth	57%,n=86
Above or below the tooth*	30.5%,n=46
9. Should the tooth be cleaned before shade matching? It should be cleaned*89.4%,n=135	
No need of cleaning	6.6%,n=10
Any of the above	1.3%,n=2
Don't know	2.6%,n=4
10. When should the shade matching done? When the tooth is hydrated*	80.8%,n=122
When the tooth is dehydrated	2.6%,n=4
When the tooth is partially hydrated	9.3%,n=14
Don't know	7.3%,n=11
11. What should be the distance that should be maintained by the clinician for shadeselection? 10-16 cm	38.4%,n=58
17-21 cm	38.4%,n=58
22-27 cm	10.6%, n=16
28-33 cm*	12.6%,n=19
12. After bleaching, for how long you should wait for shade matching? Immediately	10.6%,n=16
After 1week	46.4%,n=70
After 10 days	13.2%,n=20
After 2-3 weeks*	29.8%,n=45
13. Why you should do shade matching when the teeth are most hydrated? Because enamel dehydration reduces its translucency*	70.2%,n=106
Because enamel dehydration increases its translucency	17.9%,n=27
Any of the above	2%,n=3
Don't know	9.9%,n=15
14. During shade selection teeth should be divided in how many regions? Gingival area, body area	19.9%,n=30
Gingival area, incisal area	6%,n=9
Body area, incisal area	3.3%,n=5
Gingival area , body area and incisal area*	70.9%,n=107

\*correct answer from choices provided



Only few (30.5%) of the participants knew that shade tabs should be placed above or below the tooth to be compared. Most (89.4%) of them knew that tooth should be cleaned before shade selection. Most (80.4%) of the participants knew that shade selection should be done when tooth is in hydrated state. Very Few (12.6%) of them knew that 28-33 cm distance should be maintained while shade selection. Only Few (29.8%) participants knew that we should wait for 2-3 weeks after bleaching procedure to do shade selection. Most (70.2%) of the participants knew that enamel translucency is reduced

when teeth is dehydrated. Most (70.9%) of the participants knew that tooth should be divided into 3 regions during shade selection.



## DISCUSSION

The present study collects data on the knowledge about shade selection among the general dental practitioners in Dakshina Kannada. In this survey, most of the participants had knowledge of few criteria of shade selection. Most of the participants were aware that the tooth should be at level of eye. Because at this level the most colour sensitive part of retina is used<sup>6</sup>

There are many factors which effect the selection of shade. They include time of the appointment, light source, time taken to select a colour, patients make up, dentists age, cleanliness of tooth, its hydrated state, areas divided during selection of shade, placement of shade tab, the effect of bleaching and distance between tooth and the dentist. Each of this factor has its own significance in the selection of shade.

Starting with the time of the appointment, Selection of shade should be in the morning appointments as the best source of light is day light, the first choice of shade will be the best choice of shade. Hence, the selection of shade should be as soon as possible (5s) because<sup>4</sup>. Light factors which include light source, intensity and nature of light under which dentist views the tooth, patients makeup like bright coloured clothes or bright coloured lipsticks interfere with the reflection of light, dentists age as the lens of the eye and cornea become yellow with age which imparts colour matching ability of dentist<sup>2</sup>.

The tooth should be clean because error in selection of shade may occurs if the teeth are stained /not cleaned and it should be hydrated because if the tooth is not hydrated its translucency is decreased<sup>3</sup>. Tooth should be divided into three parts, they are incisal, body and gingival third since the body area is the best representation of colour of tooth as incisal area is affected by its background as it is translucent and the gingival third is affected by scattered light from gingiva<sup>5</sup>.

Placements of the shade tabs which is very important in selection of shade because tab and tooth should be in the same plane or not in front of tooth because tooth will appear lighter and not behind tooth because tooth will appear darker<sup>4</sup>.

The minimum distance (28-33cms) should be maintained between tooth and clinician during selection of shade this is important because change in the distance causes error in the selection of shade. Minimum of 2-3 weeks waiting period after bleaching of the tooth is required since after bleaching darkness of the tooth decreases<sup>4</sup>.

## CONCLUSION

Patients nowadays are very conscious about their esthetics and are very specific about esthetics, so it is important to have complete knowledge about selection of shade to satisfy patient's esthetic needs. Within the limitations of this study, the knowledge regarding shade selection was found to be adequate among general dental practitioners in Dakshina Kannada. However, it is seen that there is relative lack of knowledge regarding property of color, placement of shade tabs of shade guide, distance between clinician and patient during shade selection and waiting period for shade selection after bleaching. Therefore, various seminars, continuous dental education programs or workshops should be conducted so as to increase their awareness of shade selection.

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