

“Knowledge, Attitude and Practice of Dental Practitioners and Post Graduate Students on Shade Matching of Anterior Teeth in Nagpur City–A Cross Sectional Study”

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Abstract: Shade matching has become crucial due to the rising demand for procedures like laminate, veneers, and even teeth bleaching. In dental practice, determining color and shade is generally seen as difficult. The primary cosmetic cause of most prosthesis failures is a poor shade selection. Dentists must comprehend shade matching in order to attain the best possible outcomes in terms of aesthetics and patient satisfaction. To evaluate dental professionals' and graduate students' knowledge, attitudes, and practices regarding anterior tooth shade, a validated questionnaire with 14 items was created. The study concluded majority of dentists are knowledgeable about shade selection and practice the same.

Introduction: With increasing demand for procedures such as laminate, veneers and even bleaching of teeth, shade matching has become very important. Determining color and shade is typically thought to be challenging in dental practice.^[1] A poor choice of shade is the main aesthetic reason why most prosthesis fail.^[1] Therefore, accurate shade matching, is crucial to have a solid understanding of color and its different aspects.^[1] Colour (shade) is a combination of three variables: hue(H), chroma(C) and value(V).^[2] Hue is denoted qualities that can be differentiated by color words such as red, yellow, green, blue, or purple. {Chroma is a degree of saturation or the intensity of the hue such as light blue, dark blue, and royal blue.} Value describes the relative brightness of colors.^[3,4] There are two methods for shade selection:- Conventional and Technology based.^[5] {To achieve optimal results in terms of aesthetics and patient satisfaction, it is essential for dentists to understand shade matching.} This survey will establish a baseline to identify gaps in knowledge, attitudes, and practices related to anterior teeth shade matching among dental practitioners and postgraduate students in Nagpur

city, guiding future planning, implementation, and evaluation.

Material and Method: To assess the knowledge, attitude and practices a questionnaire study was framed with 5 question in each category. A validated Questionnaire consisting of 14 questions are prepared to assess the knowledge, attitude and practice of dental practitioner and post graduate students towards anterior teeth shade matching. The Questionnaire was a close ended type consisting of 14 Questions of which 8 will be knowledge based, 6 will be attitude and practice based. This questionnaire will be sent via online portals to dentists regardless of age, sex and experiences. Inclusion criteria: Postgraduates and Dental practitioners of all age, gender and regardless of experience. The questionnaire consisted of 8 question to assess the knowledge and 6 question to assess the attitude and practices. The demographics were:

Demographics information:

- Name (email id)
- Age and Gender

- Qualification
 - Experience year
1. In your opinion, which of the following is essential during shade matching?
 - A. Skill and Knowledge
 - B. environment and background
 - C. Armamentarium
 - D. all of the above
 2. Which among these do you think plays a major role in shade matching?
 - A. Hue
 - B. Chroma
 - C. Value
 - D. Translucency
 3. Which variable affects the perception of color:
 - A. Light source
 - B. observer (eye)
 - C. Tooth (textures)
 - D. All of the above
 4. What is the ideal time required for shade selection?
 - A. Within 2 seconds
 - B. 5-10 seconds
 - C. 10-15 seconds
 - D. 15-20 seconds
 5. The shade guide tab should be held
 - A. over a tooth
 - B. in the line of tooth
 - C. behind the tooth
 - D. away from the tooth
 6. Distance of the clinician eye to tooth while shade matching?
 - A. 25–35 cm
 - B. 10 cm
 - C. 2-5 cm
 - D. 50 cm
 7. What does the shade tabs A1–D4 (Example: A1, A2, B1, B2, C1, C2, D1, D2) in shade guide represents?
 - A. Represent hue with increasing chroma within groups
 - B. Represents both hue with increasing chroma within groups or value
 - C. Represent value
 - D. No idea
 8. Do you think shade selection at the beginning of an appointment is better than doing it later?
 - A. Yes
 - B. No
1. Do you take patients opinion while doing shade selection?
 - A. Yes
 - B. No
 2. Which method do you prefer during shade selection.
 - A. Visual (manual)
 - B. Instrumental (mechanical)
 - C. Combination of both
 3. What method of isolation do you prefer while doing shade matching for anterior restoration?
 - A. Rubber Dam Isolation
 - B. Cotton rolls
 - C. Teflon Tape
 - D. Saliva ejector
 4. Your preferred condition of the tooth while shade selection?
 - A. Dry
 - B. Wet
 - C. Both dry and wet
 5. Under what kind of light do you prefer for the shade selection ?
 - A. Natural light
 - B. Chair lamp
 - C. Flash light
 - D. Standard light
 6. Do you prefer to use separate shade guides for ceramic restorations and for composite restorations?
 - A. Yes
 - B. No (universal shade guide)

Result: In the questions pertaining to knowledge 97% know about the importance of the essentials for shade matching such as environment and background, armamentarium, skills and knowledge. 97% know about the importance of value in shade matching. 90% knows about the variables affecting shade matching. 97% know about the ideal requirement for shade matching. 85% participants know about the distance required. 85% know what the shade tab represent and 90% of participants take the shade at the beginning of appointment. For attitude and practices 90% take opinion while shade matching. 70% participants use combination of both visual and instrumental methods for shade matching. 50% participants use isolation methods such as rubber dam. 75% prefer dry tooth for shade

For attitude and practice:

matching. 80% use natural light for shade selection. 90% used the same shade guide for shade selection.

Discussion: Esthetic procedures have gained lot of demand in today's modern world.⁽¹⁾ A detailed research has been going on from many years so that a correct shade prosthesis with a good esthetics can be delivered to the patient. The knowledge in dental practitioners becomes equally important. A lot of studies has been conducted to assess the knowledge. One such study Jouhar, R.; Ahmed, M. A. Khurshid, Z et al in their study have stated that before evaluating and selecting the precise colour shade for the restoration of teeth, it is important to understand the fundamentals of colour and light, the electromagnetic spectrum and the visual characteristics of the item. Borse S, Chaware SH in their study has concluded that matching the correct

shade satisfies both the dentist and patient and gives a pleasing appearance to the patient.⁽²⁾ In order to achieve good esthetics, both conventional and digital shade systems should be employed during the shade matching. Shade matching requires a through knowledge of shade science, skills to match the shade and right armamentarium and lighting background.⁽³⁻⁶⁾ The knowledge of shade selection in dentist becomes very important but when its is coupled with right attitude and right practices it the process of shade selection become more accurate and practice.

Conclusion: Most of the dental practitioner are aware of shade selection and they work with the right attitude and do the right practise. However they are less aware about the recent advances in shade selection and carry out the traditional procedures.

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