

The Ideal Shade of Composite for Primary Dentition

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Abstract:

Resin based composite is an oligomer consisting of bisphenol d-glycidyl methacrylate (BISGMA). It has found its use in pedodontics since time immemorial. In restorations of primary teeth a shade named Pedo Shade is commonly used.

Aim of the study:

To find an ideal shade of composite for primary dentition.

Materials and methods:

The study was done primarily in children hailing from Chennai belonging to the age groups of 4-10 years. VITAPAN Shade guide was used as a reference to derive the final conclusion. The final results were compared and based on parental satisfaction.

Reason: The operators face difficulty in perfectly matching the Pedo Shade composite to all the three incisal, middle and cervical aspects of the primary tooth.

INTRODUCTION:

A perfect aesthetic smile is a need of every individual. Composite resins ensure aesthetics. In the primary dentition there is a variation in the shade of teeth unlike permanent dentition [1]. Primary teeth are lighter in shade than permanent teeth, but only a few studies have been conducted using measuring devices [2] [5]. Based on these results, the primary anterior tooth surface color was found to be very light [2]. Pedo Shade composite is a composite system that offers a three-way cure for core buildup and restorative applications [1]. It is most commonly used for restorations in today's practice. The perception of colour varies among individuals and it is manipulated by three factors, namely, the light source, the object being viewed, and the observer viewing the object [2] [6] [3]. Since the shade of a primary tooth varies from incisal to cervical, operators face difficulty in selecting an ideal shade composite for restoring the primary teeth. The main purpose of this study was to find an ideal shade of composite that can be applicable in restoring primary teeth.

MATERIALS AND METHODS:

The study was done in outpatient department of Saveetha Dental College and Hospitals, Chennai, Tamil Nadu. It was conducted among 1350 patients of the age groups of 4-10 years who reported along with their parents to the clinic. VITAPAN Classical and VITA Classical Shade Guides were used in the study. Shade selection was done before the tooth dried, as lack of moisture could interfere with the process. Various shades were compared against individual aspects namely the incisal, middle and cervical thirds of the tooth by a trained and calibrated examiner. The shade guide was held at arm's length next to the patient's mouth to determine, which shade from the guide, perfectly matched respective aspects of the tooth. The most ideal shades of composite were then selected based on parental opinion. Following this, the adaptation of the corresponding shade of composite, to the three aspects of the tooth were compared preoperatively and after curing using a LED curing unit. The same procedure was then repeated with the use of Pedo Shade composite [COMPANY NAME 3M Z100]. The final results were derived and tabulated.

RESULTS:

Inclusion criteria :

- Children with both tooth numbers 51 and 61 intact.
- Primary dentition without fluorosis.
- Primary dentition without any crown or root fractures.
- Children belonging to the age groups of 3-6 years

Exclusion criteria:

- Children with carious teeth
- Children with anomalous teeth
- Children with fractured teeth

A total number 1350 children were included in the study and the mean age of the children was 4.8 years, For the incisal third the highest preference was given to the Shade Pedo [COMPANY NAME 3M Z100] by 55% of the parents, seconded by the composite shade D2 preferred by 34% of parents. Composite shade of B1 was most preferred by 62% of parents followed by composite shade D2, for the restorations of the middle third. 61% of parents chose composite shade D2, for the restoration of the cervical third, followed by composite shade B1.

Most ideal Shade for Incisal third of the Tooth

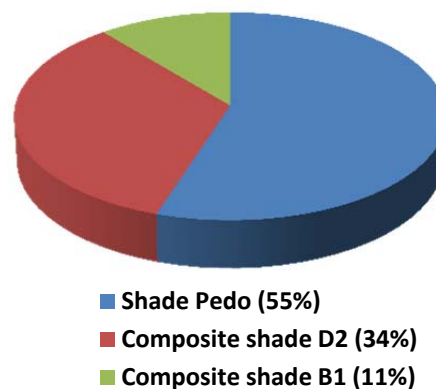


Table 1 Depicts a pie chart stating that 55% of parents chose Pedo shade composite for incisal third, 34% of parents chose D2 shade in VITAPAN & 11% chose B1 shade in VITAPAN.

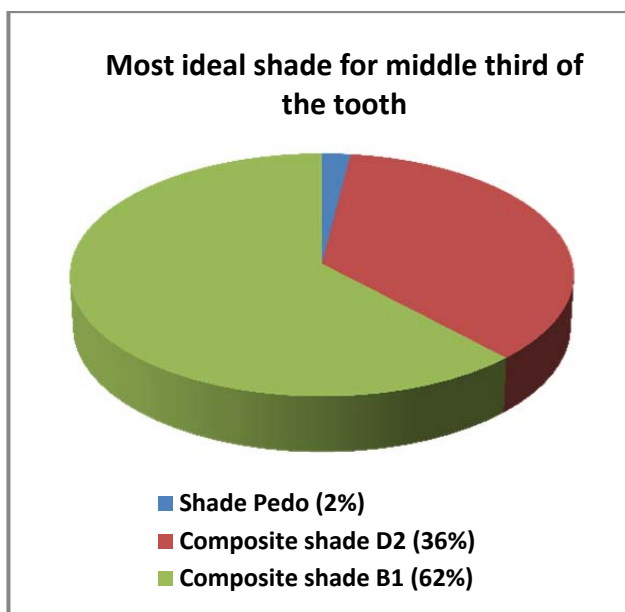


Table 2 Depicts a pie chart stating that 62% of parents chose Composite shade B1 for the middle third, 36% of parents chose D2 shade in VITAPAN & 2% chose Shade Pedo [COMPANY NAME 3M Z100]

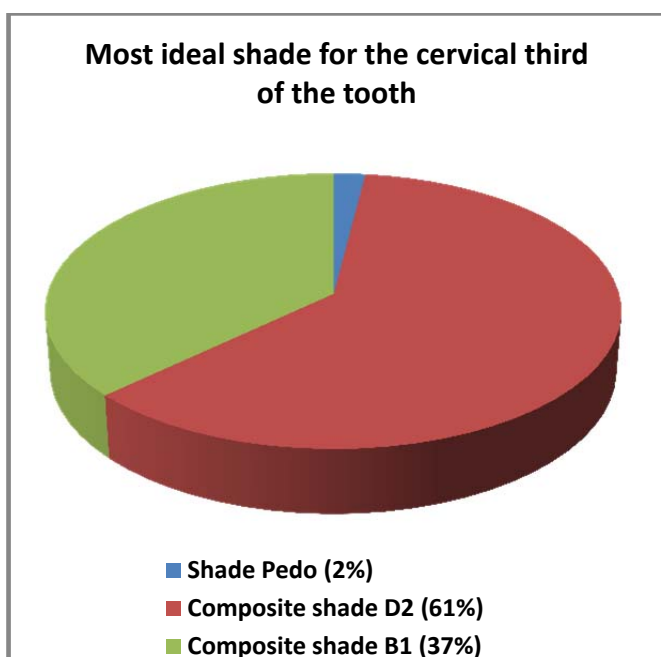


Table 3 Depicts a pie chart stating that 61% of parents chose Composite shade D2 for the cervical third, 37% of parents chose B1 shade in VITAPAN & 2% chose Shade Pedo [COMPANY NAME 3M Z100]

DISCUSSION:

The results were validated based on responses from parents of the children, among whom the study was conducted. 55% of parents felt satisfied with the Shade Pedo [COMPANY NAME 3M Z100] as the closest shade match for the incisal aspect of their child’s tooth. Similarly 62% of parents selected composite B1 as an ideal shade for the restorations of the middle third and 61% of parents chose composite shade D2 for restorations of the cervical third. The only disadvantage of this study is the sample size, which can be expanded more as we have covered only 1350 children. Also the study covers only a population limited to Chennai so it can be extended to other regions for a more precise result. Further studies are required with the use of photo-spectrometry to compare the shades which will enhance the accuracy of the findings. Drying of the tooth hinders with the accuracy of the result so more advanced technology is required in controlling such factors.(4)(5)(6)

CONCLUSION:

In this study it was found that according to parental opinions, the most ideal shade preferred for the incisal third of primary was Shade Pedo [COMPANY NAME 3M Z100]. Composite shade B1 was selected for the middle third and composite shade D2 was selected for the cervical third of primary teeth as ideal shades. Hence I conclude that, it is not only one ideal shade of composite which can be used for restoration of primary dentition, but a combination of three different shades, Shade Pedo [COMPANY NAME 3M Z100], Composite shade B1, Composite shade D2, for the three aspects of the tooth namely incisal, middle and cervical thirds.

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