Knowledge, attitude, practice on different matrix systems used for class 2 composite restorations among dental students

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Abstract---Introduction: A matrix is defined as a properly contoured piece of metal or other contoured piece of metal or other material used to support and give form to material used to support and give form to the restoration during its placement and restoration during its placement and hardening. Characteristics of a good matrix are rigidity, establishment of proper anatomical contour,restoration of correct proximal contact relation, easy adaptation to the tooth, easy adaptation to the tooth,ability to be contoured,prevention of gingival excess, strength to offer resistance to condensation pressure and easy removal from the tooth. Aim: To check the knowledge and practice of different matrix systems in class 2 composite restoration. Materials and Methods: Self administrated questionnaire was designed based on matrix systems for class 2 composite restoration. The questionnaire was distributed through an online survey link. The questionnaire was completed by 100 participants, and the data were analysed using SPSS software. Descriptive statistics and Pearson Chi square test were done to analyze the results of the survey. Majority of the participants are aware of the different matrix system for class 2 composite restoration. Results and Discussion: The responses from 100 participants were collected. Out of 100 participants, 84% of the participants had knowledge on various matrix systems used in dentistry for composite restoration. 80% of the participants are aware that the sectional matrix system provides proper restoration. 90% of the participants are aware of the Walter sectional matrix system for

class 2 composite restoration. Conclusion- The overall   tends to be moderate among health care workers. From the present study, participants had good knowledge on different matrix systems for class 2 composite restorations

Keywords---knowledge, attitude, practice, dental students.

Introduction

A matrix is defined as a properly contoured piece of metal or other contoured piece of metal or other material used to support and give form to material used to support and give form to the restoration during its placement and restoration during its placement and hardening(1,2). Characteristics of a good matrix are rigidity, establishment of proper anatomical contour,restoration of correct proximal contact relation, easy adaptation to the tooth, easy adaptation to the tooth,ability to be contoured,prevention of gingival excess, strength to offer resistance to condensation pressure and easy removal from the tooth(3). Gingival floor of a class II cavity is the most cavity is the most vulnerable area where overhang of restorative material can take place material can take place. There is no method to control the placement and contour of restoration without a matrix wall(4). A tight proximal contact can be more easily achieved with amalgam restorations by taking advantage of the condensing forces that can be applied to the material and the matrix towards the adjacent tooth(4,5). The function of the matrix bands is provision of a temporary wall of resistance to the pressure necessary for amalgam to insertion. Provision of shape and contour to the restoration. Maintenance of form during placement and set of the amalgam/composite(6). The interdental separation technique and the introduction of several matrix systems seem to have a substantial effect on the reproduced proximal contours and contact points. In previous laboratory and clinical studies, sectional matrix systems in conjunction with separation rings proved to produce proximal contact with consistent contact tightness in compound proximal restorations(7). The matrix system and applied interdental separation technique appear to have a significant influence on the tightness of the obtained proximal contact.(8)

Materials and Methods

Study design

A cross sectional study was conducted through an online survey from February to March 2021 among dental students.
Inclusion criteria: All the endodontists who were willing to participate were included.
Ethical considerations:
Ethical approval for the study was obtained from the Institutional Review Board (IRB), Saveetha Dental College.

Study methods

Self administered questionnaire was prepared and it was distributed among dental practitioners and specialists from February to March 2021 through the online survey "google forms". The collected data were checked regularly for clarity, competence, consistency, accuracy and validity. Demographic details were also included in the questionnaire.

Statistical analysis

Data was analysed with the SPSS version (22.0). Descriptive statistics as percent were calculated to summarise qualitative data. Chi square test was used to analyze and The confidence interval level was 95% and of statistical significance $P < 0.05$. Finally, the result was presented by using bar charts, pie charts and percentage tables.

Results and Discussion

The responses from 100 participants were collected. Out of 100 participants, 84% of the participants had knowledge on various matrix systems used in dentistry for composite restoration (figure:1). 80% of the participants are aware that the sectional matrix system provides proper restoration (figure:2). 90% of the participants are aware of the Walter sectional matrix system for class 2 composite restoration (figure:3). 80% of the participants are aware of the sectional matrix system in composite restoration for class 2 cavity (figure:4). 25% of the participants are I BDS students, 25% of the participants are II BDS students, 25% of the participants are III BDS students and 25% of the participants are IV BDS students (Figure:5). 88% of the participants are aware of the differences between conventional matrix band and kidney bean matrix band. 87% of the participants accepted that the matrix system is mandatory to be used in class 2 composite restoration as it rebuilt the marginal ridge with proper anatomy of the tooth. The Pearson chi square test was done in comparison with the year of study of the respondents.
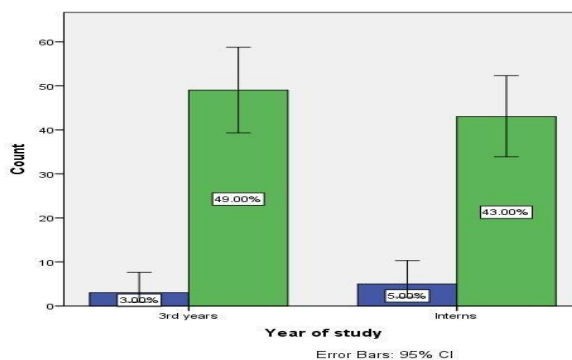

Figure 1: Bar charts representing the knowledge on various matrix systems are used in dentistry for composite restoration. Majority of the participants(50) of 3rd BDS and interns had good knowledge. Pearsons's Chi square test value : 0.304 , df value = 1 and p = 0.58 ; p> 0.05 which is found to be statistically not significant.
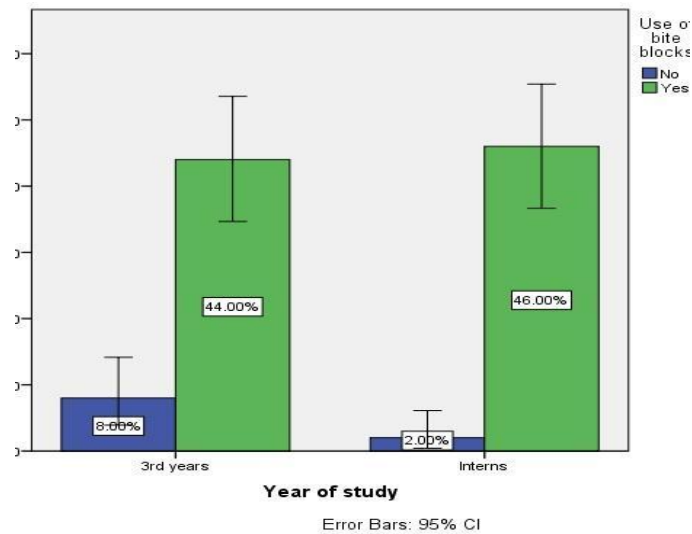
Figure 2: Bar charts representing the awareness of the sectional matrix provides proper restoration of inter proximal anatomy of the tooth. Majority of the participants(50) of 3rd BDSand intern had good awareness that the sectional matrix provides proper restoration. Pearsons's Chi square test value : 0.407 , df value : 1 and p = 0.60 ; p< 0.05) which is found to be statistically insignificant.
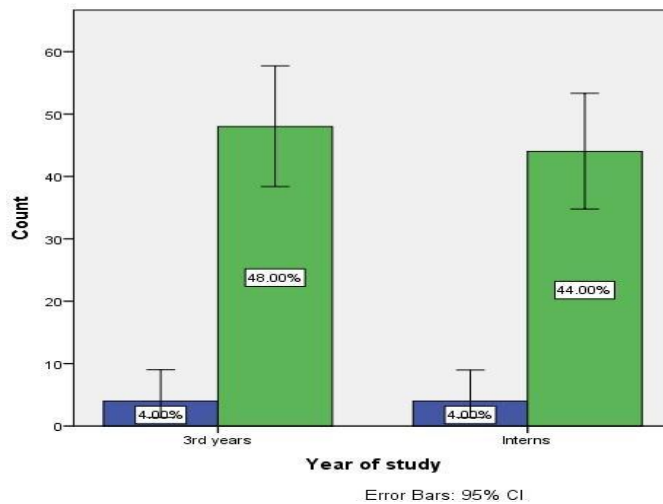

Figure 3: Bar charts representing the awareness of the sectional matrix system in composite restoration for class 2 cavity. Majority of the participants(50) of 3rd BDS and interns had good awareness of the sectional matrix system in composite restoration for class 2 cavities. Pearsons's Chi square test value = 0.304 , df value = 1 and p = 0.58 ; p> 0.05 which is found to be statistically not significant.

The present study is a novel study, hence there is no existing previous studies. The reason for the better knowledge and perception among the 3rd BDS and Final BDS students is due to   different curriculum patterns and they are better exposed to clinical cases. Limitation of the study is less sample size. In future an extensive study with large sample size and varied population can be used to

assess the knowledge, awareness and practice of different matrix systems used for class 2 composite restoration.(9–18),(19–22),(23–27)(28)

Conclusion

The overall   tends to be moderate among health care workers. From the present study, participants had good knowledge on different matrix systems for class 2 composite restorations.

Author Contributions

Author 1 (Thirukumaran), carried out the study by collecting data and drafted the manuscript after performing the necessary statistical analysis. Author 2 (Dr.S.Delphine) aided in conception of the topic, has participated in the study design, statistical analysis and has supervised the preparation of the manuscript. All the authors have discussed the results among themselves and contributed to the final manuscript.

Acknowledgement

Conflicts of Interest

The authors declare that there were no conflicts of interest in the present study.

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