

KNOWLEDGE ATTITUDE AND PRACTICE OF DENTAL STUDENTS TOWARDS FINISHING AND POLISHING OF COMPOSITE RESTORATION.

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Abstract

Introduction: In the direct restorative method we have to observe numerous steps to obtain aesthetic, natural and predictable results. It's important to achieve the finishing and polishing process and supply the composite resin with a natural look of tooth gloss. The first step of finishing and polishing is checking and correcting the shape of the tooth. The shape is liable for the symmetrical percentage and integration of the restoration with the numerous teeth. The aim of this study is to evaluate the knowledge, attitude and practices of dental students towards finishing and polishing of composite restoration.

Materials and methods : Self-administered questionnaire as designed On the topic "knowledge, attitude and practices towards finishing and polishing of composite restoration among dentists " The questionnaire was distributed through a google forms link. The entered data analysed using SPSS statistics Version 21.0. Descriptive statistics was performed to calculate frequencies of categorical variables and chi square test was done to study the association.

Results: Majority of respondents had good knowledge (67.5%), while 60.5% of them had good practices. After controlling for confounders by multivariate logistic regression, all categories of dentists with good knowledge and consultants still had significantly better dental practices. $P = 0.58 > 0.05$.

Conclusion: Experienced dentists and restorative consultants appear to have adequate knowledge about composite and this had a significant impact on their practice. A need however exists to bridge the gap among other categories of dental personnel to improve the esthetic outcome of composite restorations.

Keywords: composite, finishing, polishing.

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INTRODUCTION:

Dental composites are hydrophobic in relevant human dental tissues. To attain bonding to enamel and dentin, a surface pretreatment is critical. They're still sensitive to humidity throughout the process within the oral fissure. The shrinkage of contemporary dental composite materials amounts to 2–3 vol.%. Throughout polymerization the shrinkage forces will reach 3–7 MPa with peaks of thirty MPa (St-Pierre, no date), (Kurtzman, 2017). For these reasons, a sophisticated operative technique is critical. A shrinkage-free composite with an honest wetting ability is very desired to alter the operative technique and is the object of current analysis (Pritzel, 1980). Glass and Kevlar continuous fiber-reinforced thermoplastics are being developed for specific applications, e.g., dentistry frameworks and dental medicine retainers, however, these still need sizable improvement of the surface stability (Bansal *et al.*, 2019; Oktay *et al.*, 2020). To explore potential improvement of the mechanical properties of organic compound composites, a sturdy electrical fields area unit investigated causing Associate in Nursing alignment of filler particles and, thus, increasing the mechanical properties of filler-reinforced systems.

The hydrolytic sensitivity of the accessible systems compromising mechanical strength Associate in Nursing fracture toughness remains an unresolved drawback that must be approached. Ancient composites contain comparatively giant particles of ground amorphous silicon dioxide and quartz, which supplies them smart mechanical properties, however makes the surface of the restoration a bit doubtless to become rough from daily abrasion (Peumans *et al.*, 2020). Additionally, several failures of composite restoration area units are seen at the interface between tooth and composite

because of shrinkage or adhesive failure. To beat this, microfilmed composites, landfilled composites, and different hybrid composites were developed, mistreating a lot of smaller particles (at constant time with an oversized selection in size) to fill within the matrix. With these developments, sander surfaces are achieved, wear resistance is enlarged, and shrinkage is small while not compromising the mechanical and physical properties (Babina *et al.*, 2020; Peumans *et al.*, 2020). The first step of finishing and sharpening involves checking and/or correcting the form of the tooth. The form is chargeable for the symmetrical proportion and integration of the restoration with the varied teeth. To ascertain the form we've got to look at the angle lines that divide the plane space of a massive reflection light-weight (between the angle lines) and therefore the shadow space that lies outside the angle lines and is rounded.

By operating within the distance between the angle lines we are able to produce optical illusions between wider or narrower, longer or shorter teeth, maintaining the particular proportion of the tooth. Thus if we would like to relinquish the illusion that the tooth is narrower, we must always approach the angle lines, decreasing the flat space. On the other hand if we would like to make the illusion that the tooth is wider, we must always move far away from the angle lines by increasing the flat space (Soares *et al.*, 2019).

Typically, this correction of angle lines and flat space is formed with medium grain discs or with fine-grained diamond tips. Then the contour of the incised embrasures should be done. This contour could vary from straight or curving. Typically the distal angle is an additional rounder than the median angle. The definition of the embrasures is sometimes created with abrasive discs. Most brands that have abrasive discs give four particle sizes known by color (Miletic, 2017; Santos *et al.*, 2017). Within the finishing method we have a tendency to typically use solely the 2 intermediate grains (for example Sof-Lex, 3M dark orange and light-weight orange). This is often as a result of if we have a tendency to use the additional abrasive we are able to take away an excessive amount of composite organic compound and if we have a tendency to use the less abrasive we have a tendency to solely add brightness to the organic compound ('Compact deburring/finishing/polishing system', 2003; Freedman, 2011; Miletic, 2017; Santos *et al.*, 2017). Our team has extensive knowledge and research experience that has translate into high quality publications (Dinesh *et al.*, 2013; Krishnan and Lakshmi, 2013; Muthukrishnan and Warnakulasuriya, 2018; Sekar *et al.*, 2019; Gomathi *et al.*, 2020) (Sathivel *et al.*, 2008; Panda *et al.*, 2014; Govindaraju, Neelakantan and Gutmann, 2017; Johnson *et al.*, 2020; Saraswathi *et al.*, 2020). Thus the aim of this study is to evaluate the knowledge and attitude towards finishing and polishing of composite restoration among dental students.

MATERIALS AND METHODS:

Self-administered questionnaire as designed On the topic "knowledge, attitude and practices towards finishing and polishing of composite restoration' The questionnaire was distributed through a google forms link. The study population also included 125 postgraduate dental students. The sample size was calculated A prior to keeping the confidence interval 95%. The participants were explained about the purpose of the study in detail .The questions were carefully studied and the corresponding answers were marked by the participants and the data was collected and statistically analysed through SPSS software Version 21.0. Descriptive statistics was performed to calculate frequencies of categorical variables and the association was analyzed using chi square test. The P value was set at 0.05

RESULTS AND DISCUSSION:

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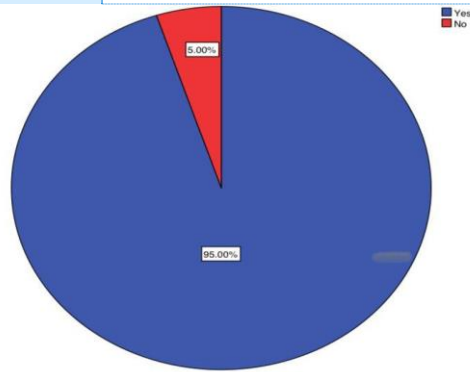


FIGURE 1: This pie chart shows the knowledge of respondents on composite where 95% responded yes (Blue) and 5% responded no (Red).

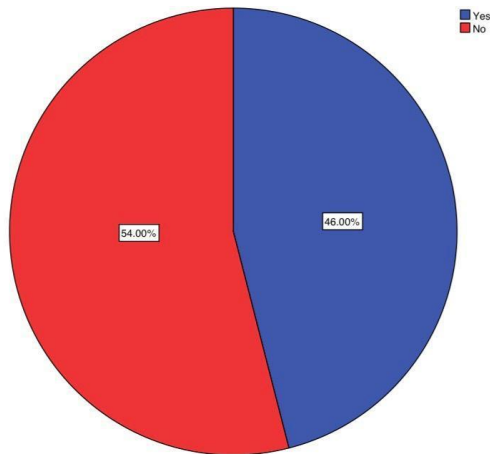


FIGURE 2: This pie chart shows the knowledge of respondents on the methods and different types of composite in that 46% were aware (Blue) and 54% were not aware (Red).

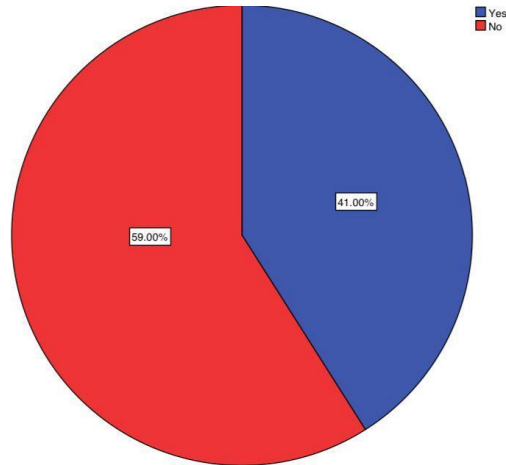


FIGURE 3: This pie chart shows the knowledge of respondents on setting time of composite in which 41% were aware (Blue) and 59% were not aware (Red).

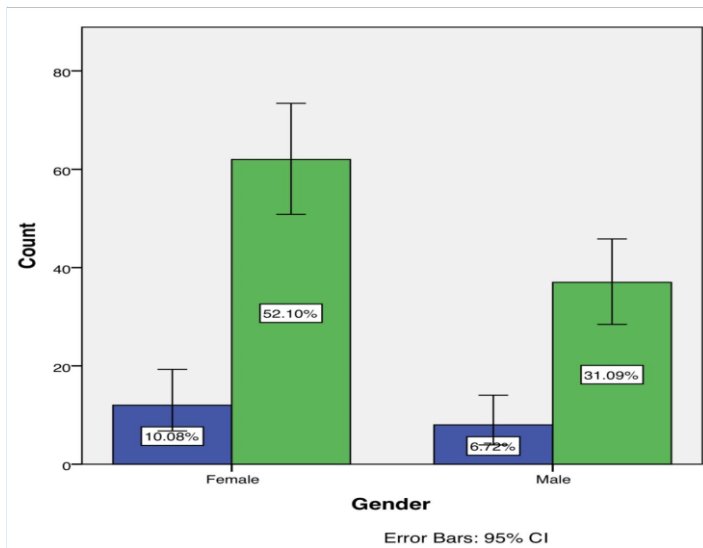


FIGURE 4: This graph represents the association between gender and knowledge on finishing and polishing of composite restoration . X axis represents the gender and y axis represents the number of participants, green represents the people who answered yes and blue represents the people who answered no. In both genders there was a similar level of knowledge on finishing and polishing of composite restoration. There was no significant association (Pearson's Chi square test; $P = 0.58 > 0.05$ which is found to be statistically not significant).

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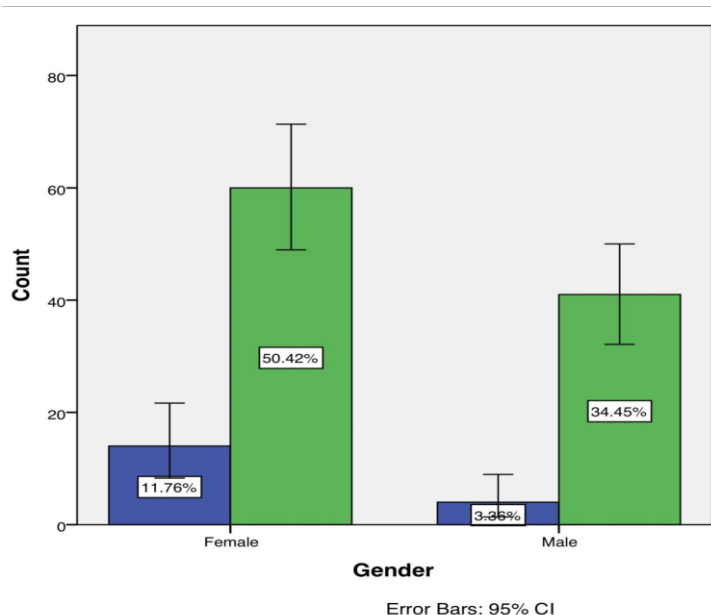


FIGURE 5: This graph represents the association between gender and response to whether composite is a strong and aesthetic restorative material. X axis represents the gender and y axis represents the number of participants , green represents the people who answered yes and blue represents the people who answered no. Both genders agreed similarly that composite is a strong and aesthetic restorative material. There was no significant association (Pearsons’s Chi square test; $P = 0.60 > 0.05$ which is found to be statistically not significant).

Finishing and polishing are 2 abrasive strategies normally utilized in dentistry Finishing – Process of putting off floor defects or scratches created at some point of the contouring method via the usage of reducing or grinding devices or each. Polishing – Process of offering luster or gloss on a fabric floor. Proper completing and sprucing is vital for numerous reasons, such as: It guarantees the oral fitness and sturdiness of restorations. A clean floor reduces the probability of adhesion, because of this that plaque is much less probable to build up on a sophisticated floor. Having much less plaque can also additionally hold your teeth enamel, that is not possible to absolutely repair as soon as it is eroded or decayed. Tooth sprucing additionally eliminates micro organisms from the floor of your teeth. “Polishing is beautiful and healthy. To offer best management for the operator, composite completing needs to be finished beneath near low-pace/high-torque (pace from zero rpm to 30,000 rpms). Coarse—The coarse grit is the stiffest of all of the discs. This grit is used alongside multi-fluted completing burs for gross contouring and shaping. Proper contouring, finishing, and polishing of restorations is a key component to the long-term success of bonded restorations and is important for several reasons . Similarly, 91.1% respondents felt that polishing and finishing procedures play a crucial role in color stability of composite restorations. This article outlines the importance of three different phases in the finishing and polishing process. First, the appropriate restorative materials, from composites to polishers, must be carefully selected to help get the job done right. Then, the dentist must conceptualize the desired end result, and set up the restoration accordingly. And, finally, the proper finishing and polishing technique must be executed in order to achieve maximum restorative success. (Narendran *et al.*, 2020; Reddy *et al.*, 2020; Teja and Ramesh, 2020; Bhavikatti *et al.*, 2021; Chakraborty *et al.*, 2021; Karobari *et al.*, 2021; Muthukrishnan, 2021a, 2021b; PradeepKumar *et al.*, 2021; Sawant *et al.*, 2021),(Romera *et al.*, 2018; Ezhilarasan, 2020; Raj R, D and S, 2020; Rohit Singh and Ezhilarasan, 2020),(Priyadharsini *et al.*, 2018; Vijayashree Priyadharsini, 2019; Gudipaneni *et al.*, 2020; Uma Maheswari, Nivedhitha and Ramani, 2020; Chaturvedula *et al.*, 2021),(Kanniah *et al.*, 2020)

In other articles like (Al Hamad *et al.*, 2019) has explained about the techniques of finishing and polishing of composite and its importance, where the other article (Giampaolo *et al.*, 2003) the author explains the procedure of composite restoration but it lacks the information about the finishing and polishing of composite. In this article (Small, 1999) the author concludes about the necessity of finishing and polishing and it's importance. In this article (Zajia, 1984) the author explains the effects of early and delayed finishing and polishing.

CONCLUSION:

Experienced dentists and restorative consultants appear to have adequate knowledge about composite and this had a significant impact on their practice. A need however exists to bridge the gap among other categories of dental personnel to improve the esthetic outcome of composite restorations. The primary purpose of finishing and polishing composite restorations is to create a restoration that is smooth, uniform, and easily cleaned by the patient. This, in turn, can increase the longevity of the restoration, decrease the incidence of recurrent caries, and promote the health of surrounding tissues. Within the limitations of this study, it was found that female participants were more aware regarding the importance of finishing and polishing composite restorations. Most of the dental students reportedly use finishing and polishing burs which may be due to the lack of knowledge and awareness regarding the polishing kits. Therefore it is necessary to impose the importance regarding the new techniques in dentistry.

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CONFLICT OF INTEREST: The authors declare no conflict of interest.

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