International Journal of Dentistry and Oral Science (IJDOS)
ISSN: 2377-8075

Evaluation Of Commonly Treated Mandibular Teeth With Preventive Resin Sealant Among Children With Permanent Dentition

Research Article

E. Thariny[1], Vignesh Ravindran[2*]

[1] Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences [SIMATS], Saveetha University, Chennai - 600077, Tamilnadu, India.
[2] Senior Lecturer, Department of Pedodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences [SIMATS], Saveetha University, Chennai - 600077, Tamilnadu, India.

Abstract

Aim: To evaluate the prevalence of commonly treated mandibular teeth with preventive resin sealant among children with permanent dentition.
Introduction: Dental sealants are thin plastic coatings that are professionally applied to the occlusal (chewing) surfaces of your permanent back teeth to protect them from decay. This procedure usually takes just a few minutes per tooth. Since premolar and molar teeth have pits and fissures in their surfaces, they are more susceptible to decay. These fissures can be deep and small, making cleaning and accessing them difficult. These fissures can be as tiny as a single toothbrush bristle at times. Plaque then forms in these regions, and the bacteria in the plaque invade the enamel of the tooth. Sealants are normally added to children's teeth to protect their molars from decay.
Materials and Method: Case sheets of patients with preventive resin sealant treated mandibular teeth were sorted. The required data was collected and analysed using SPSS software. Chi-square test was done to find the p value.
Result: The data reveals that about 19.88% of the pedo pits and fissure sealant treatment was done in 36. Around 19.26% of the pedo pits and fissure sealant was done in 46. The most commonly treated gender is males when compared to females. On comparison of gender with teeth treated with preventive resin sealants, it was found that the tooth number 36 of the males are mostly treated with sealants, which was found to be statistically significant with a P value of 0.032 ($p<0.05$).
Conclusion: This study reveals that pit and fissure sealants were commonly placed in the left permanent first mandibular molar tooth which was higher in males.

Keywords: Preventive Resin Sealants; Mandibular Molar; Permanent Dentition; Minimally Invasive Procedure; Dental Caries; Innovative Technique.

Introduction

Dental caries is a multifactorial disease caused by a change in the composition of the bacterial biofilm, resulting in an imbalance between the demineralization and remineralization phases, and represented by caries lesions in the primary and permanent dentitions. According to the National Health and Nutrition Examination Survey (NHANES) data from 2011–2012, 58 % of children aged 12–19 had dental caries in their permanent teeth [1]. In children and teenagers, pit and fissure caries account for around 90% of caries in permanent posterior teeth and 44% of caries in primary teeth. Dental caries can easily start on the biting surfaces of posterior teeth, as well as in pits, fissures, and enamel defects. Pits and fissures also have thin enamel at their base [2]. Furthermore, standard oral hygiene steps such as tooth brushing are ineffective in removing plaque that has accumulated in these regions. Because of their morphological complexity, pits and fissures on the occlusal surfaces of posterior teeth are more vulnerable to caries growth than smooth surfaces, making dental hygiene more difficult and contributing to increased plaque accumulation. As compared to the enamel on smooth surfaces, the enamel in pits

***Corresponding Author**:
Vignesh Ravindran,
Senior Lecturer, Department of Pedodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences [SIMATS], Saveetha University, 162, PH Road, Chennai - 600077, Tamilnadu, India.
Tel: 9789934476
E-mail: vigneshr.sdc@saveetha.com

Received: September 13, 2021
Accepted: September 20, 2021
Published: September 21, 2021

Citation: E. Thariny, Vignesh Ravindran. Evaluation Of Commonly Treated Mandibular Teeth With Preventive Resin Sealant Among Children With Permanent Dentition. *Int J Dentistry Oral Sci.* 2021;8(9):4465-4469. doi: http://dx.doi.org/10.19070/2377-8075-21000908

and fissures cannot obtain the same level of fluoride protection.

Preventive dentistry may be thought of as a compilation of all efforts to prevent dental diseases or the consequences of a person's dental diseases and disorders. These efforts include primary prevention, which refers to any measure taken before the onset of a preventable disease in the pre-pathogenic era [3]. Pit and fissure sealants provide a physical barrier that prevents microorganisms and food particles from accumulating, halting caries development and preventing caries initiation. Caries are most prevalent in permanent first molars, followed by second molars. Since caries develop quickly after a permanent molar erupts into the oral cavity, managing occlusal caries on permanent molars is a major challenge. Pit and fissure sealants' efficacy is dependent on their ability to stay in place for an extended period of time. Dental sealants may be an effective protective tool for pit and fissure caries in at-risk communities whether used as part of a holistic solution to caries prevention on an individual basis or as a public health measure for at-risk populations [4]. Since penetrating the pits and fissures, the dental sealant layer hardens, creating a physical shield that prevents bacteria and nutrients from entering.

The first clinical trial took place in the late 1960s, and today there are a variety of widely available sealant formulations that have been tried, including resin-based sealants that are polymerized using a chemical or light activation system; glass ionomer-based sealants that release fluoride; polyacid-modified resin sealants [5]. Based on the material and process of polymerization, resin-based sealants can be divided into four generations . The first generation of sealants were cyanoacrylates that were activated with a 365 nm ultraviolet light source. These sealants are no longer used due to reported deterioration of the oral cavity over time. Second-generation resin sealants contain autopolymerizing or chemically treated BISGMA or urethane dimethacrylate-based materials.

To cause polymerisation, third generation sealants contain a diketone initiator and a reducing agent, and they are visible light enabled. Fourth-generation sealants are made of fluoride-releasing resins. Glass ionomer sealants are made of glass ionomer cements which have the ability to chemically bind to the tooth structure. Because of their fluoride-releasing properties, these sealants are commonly used. They have the benefit of being less moisture dependent, allowing them a viable alternative to resin-based sealants in situations where moisture retention is a concern. Compomers and giomers, for example, are hybrid sealants that combine resin and GICs. Compomers are polyacid-modified composite resins, whereas giomers are fluoride-releasing products composed of urethane resins with surface-reacted glass ionomer filler particles. There are new compounds with insufficient evidence on their caries-preventive properties [6]. Due to a lack of clarity within contemporary evaluation standards, grading the seriousness of carious lesions is difficult.

The International Caries Detection and Assessment System (ICDAS), which was recently launched, combines many new standards into a single uniform system, making caries assessment easier. These prevention approaches are simple to implement in dental practise, and a large body of scientific data supports their efficacy [7]. Fluoride gel, fluoride varnish, chlorhexidine, pit-and-fissure sealants, and oral hygiene education, for example, have all been the subject of systematic reviews. Since sealants have been shown to be an important prevention process, it is no longer ethical to compare the decay history of sealed and unsealed teeth. As a result, modern sealant formulations cannot be evaluated in this manner. Since sealants have been shown to be an important prevention process, it is no longer ethical to compare the decay history of sealed and unsealed teeth. Only few studies are done on sealants and its use. Our team has extensive knowledge and research experience that has translate into high quality publications [8-20, 21-27].

This study includes its prevalence in the gender and various teeth treated with preventive resin sealants. As a result, modern sealant formulations cannot be evaluated in this manner [28]. The most common outcome in this form of research is sealant to see the prevalence of mandibular permanent teeth treated with preventive resin sealants.

Materials and Methods

This study was conducted in a private university setting. This study was retrospective in nature. A total of 5784 subjects were considered for this study. The main advantage of conducting the study in a university setting is that it aids as a single centre for multiple people from different localities at the same time. On the other hand, the disadvantage is that the subjects in this study do not represent the general population. The inclusion criteria for this study consisted that the subjects had to be children within the age group of 13-17 years. The exclusion criteria consisted of subjects younger than 13 years and those older than 17 years old. The subjects were chosen at random, inclusive of all gender to reduce and minimise sampling bias. The case sheets were verified manually using MS excel. DIAS provided case sheets of patients treated with preventive resin sealant for examination. A third examiner checked through the collected data's case history to double-check the accuracy of the information using post-operative photographs. SPSS was used to tabulate the collected data for statistical analysis. Frequency distribution and Chi-square tests were performed for statistical analysis. The Chi-square test and descriptive statistics were used, with a degree of significance of 5% ($p<0.05$) .The independent variables of this study were gender and geographic background. the dependent variables were the age of the patient and mandibular teeth treated

Results

A total of 68 case sheets met the inclusion criteria. Based on the dentition, children with primary dentition had the highest opportunity to get treated with silver diamine fluoride (72.41%) [graph 1]. The DMFT scores above 2 was found to be in 79.31% and below 2 in 20.69% [graph 2].Among the females treated with silver diamine fluoride, 58.52% had DMFT score above 2, while 1.72% had DMFT score less than 2. Among the males treated with silver diamine fluoride, 20.69% had DMFT score above 2, while 18.97% had DMFT score less than 2. Females with a higher caries prevalence were treated with silver diamine fluoride when compared to males. This difference was found to be statistically significant ($p=0.000$) [graph 3].

Discussion

In this study, based on the inclusion and exclusion criteria, dental treatment records of 5784 children of age 13 to17 years were

Figure 1. This bar chart represents the gender of the children whose mandibular teeth are treated with preventive resin sealen. Pink colour in the chart represents female and orange colour represents male. Nearly half of the study population who are treated with preventive resin in their mandibular teeth were males (50.50%) and only 49.50% were females.

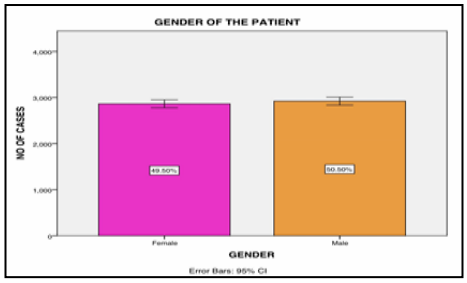


Figure 2. This bar graph represents the age of the children whose teeth are treated with preventive resin sealant. Most of the treated children are likely to be in the age of 13 years (26.59%)(black), 23.08% were 17 years old, 17.86% were 16 years old, 17.19% were 14 years old and 15.28% were 15 years old.

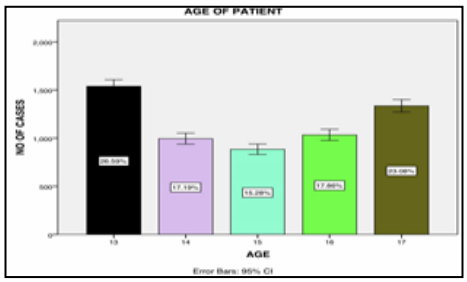


Figure 3. This bar chart represents the count in percentage of each tooth number of the mandibular arch treated with preventive resin sealant. The count of tooth number 36 treated with sealant (brown) was found to be higher (19.88%) than the other affected tooth, 19.26% was in tooth number 46 (blue), 18.64% was in tooth number 47(grey),18.59% was in tooth number 37(purple), 7.60% was in tooth number 45(red), 7.59% was in tooth number 35 (green), 4.288% was in tooth number 34 (dark blue) and 4.14% was in tooth number 44 (yellow). From this graph we can interpret that the mandibular molars both permanent molars and premolars, were commonly treated with the sealants.

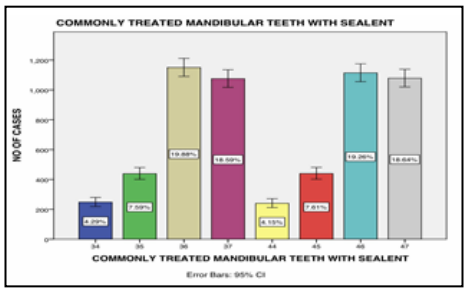
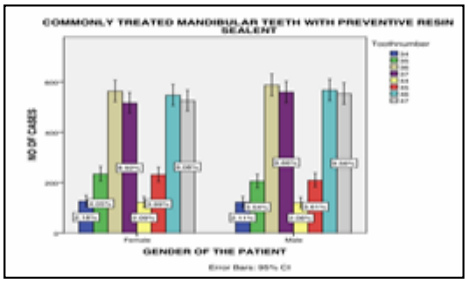


Figure 4. This bar chart represents the comparison of gender with teeth treated with preventive resin sealants. X-axis represents the gender and Y-axis represents the count of teeth treated with sealants with regards to tooth number. The count of tooth number 36 (brown) treated with sealants was found to be higher for both the gender. In case of males (10.15%) which was higher than the females (9.73%), secondly the male witty tooth number 46(blue) treated were found to be 9.80% while the count of females for the same tooth was found to be 9.46%. 9.66% of males had treated tooth number 37, 8.92% of females for the same. 9.56% of males had treated tooth number 47, 9.08% of females for the same. For the tooth number 34, 2.11% of males and 2.18% of females were treated. For tooth number 35, 3.54% of males and 4.05% of females were treated. For tooth number 44, 2.06% of males and 2.09% of females were treated. For tooth number 45, 3.61% of males and 3.99% of females were treated. From this graph we can interpret that the tooth number 36 of the males are mostly treated with sealants followed by tooth number 46 of males. Chi-square test shows Pearson chi square value of 5.823a and p value of 0.032 ($p<0.05$), hence statistically significant association was seen.



sorted and examined. Among the total population analysed, 50.50% were males and 49.50% were females (figure 1). Figure 1 shows the frequency of gender treated by preventive resin sealants in permanent mandibular arch. Previous studies stated that females had less occlusal Pit and Fissure caries than males, and there was no statistically meaningful relationship between gender and occlusal pit and fissure caries (P<0.05). Finally, males have a greater incidence of occlusal Pit and Fissure caries than females, with the largest distribution in the 18 to 25 year old age range [29]. In contrast to our study a recent study states that the sealants were more likely to be seen in girls of all age ranges (26 % for 12-year-olds and 19 % for 15-year-olds), as well as patients who went to the dentist for protection rather than those who went because they felt they needed a restoration or were in pain. In all age ranges, girls had a better chance of receiving sealants (26 % for the 12 and 12 % for the 15-year-old)but not with statistically significant difference . This could be due to salivary composition, flow rate and genetic modification [30]. Figure 2 shows the age distribution of patients who have been treated with preventive resin sealants. Most of the treated children are likely to be in the age of 13 years (26.59%). A recent study shows that sealant positioning was linked to caries reduction in both age ranges, including the low use of sealants. The decline in the 12-year-old population was not statistically significant (11%) but rose to a statistically significant 24 % in the 15-year-old group.For children who are at low to high risk for caries formation, the first permanent molars should be sealed soon after eruption at 6 to 7 years of age, and the second permanent molars at 12 to 13 years of age [31]. If the patient is at high risk for caries and has a history of occlusal caries, premolar sealants should be considered. Another study states that just 7.6% of US schoolchildren aged 5 to 17 had one or more dental sealants on permanent teeth, according to data from a nationwide study conducted in 1986 and 1987 [32] . Figure 3 shows the count in percentage of each tooth number of the mandibular arch treated with preventive resin sealant. The count of tooth number 36 treated with sealant was found to be higher(19.88%) than the other affected tooth, 19.26% was in tooth number 46. In all age ranges, first molars were sealed more often than second molars. A previous study shows that sealants were present in 8.3% and 1.4 % of age 12 and 7.4% and 2.2 % of 15-year-olds' first and second molars, respectively .Caries in pits and fissures (occlusal surface, maxillary lingual, and mandibular buccal molars). Another study shows that in comparison to the maxillary, the mandibular first permanent molars had a higher caries prevalence (33%) and more fissure sealants added (1.1%), which were statistically important (P 0.01) [33]. Figure 4 shows that the comparison of gender with teeth treated with preventive resin sealants. The count of tooth number 36 treated with sealants was found to be higher for both the gender. In the case of males (10.15%) which was higher than the females (9.73%). Previous studies show that 4% of the maxillary and 5% of the mandibular 1st permanent molars of the 13-year-old group had sealants. Other studies also show that male population was mostly affected in tooth number 36 [34]. In molars, sealants have been shown to reduce the chance of decay by approximately 80%. When it comes to your child's dental health, this is particularly critical. When assessing the effective action for non cavitated caries lesions, the clinician would consider the use of sealants to stop or slow the development of caries lesions [35]. The limitations of this study is that the population selected was only a particular age group and collected from one region. Future scope of this research should be based on the various ages and from various regions since the usage of sealants can be explored in a wide variety of populations.

Conclusion

This study reveals that pit and fissure sealants were commonly placed in the left permanent first mandibular molar tooth which was higher in males. Creating awareness among parents regarding preventive measures can help in controlling the effect of dental caries in children.

Acknowledgement

The authors are thankful to the Department of Pediatric Dentistry, Saveetha Dental College, Saveetha Institute of Medical and Technical science, Saveetha University for providing a platform in expressing their knowledge.

Source of Funding

The present project was supported by
- Saveetha Dental College
- Saveetha Institute of Medical and Technical Sciences
- Saveetha University
- Varun Beverage Ltd, Tirunelveli

References

[1]. Elamin A, Garemo M, Mulder A. Determinants of dental caries in children in the Middle East and North Africa region: a systematic review based on literature published from 2000 to 2019. BMC Oral Health. 2021 May 4;21(1):237.Pubmed PMID: 33947387.
[2]. Schiffner U. Trends in Caries Epidemiology in Children. Pit and Fissure Sealants. 2018: 1–10.
[3]. Hou J, Gu Y, Zhu L, Hu Y, Sun M, Xue H. Systemic review of the prevention of pit and fissure caries of permanent molars by resin sealants in children in China. J Investig Clin Dent. 2017 Feb;8(1): e12183.Pubmed PMID: 26272130.
[4]. Paglia L, Ferrazzano G, Beretta M. The Role of Pit and Fissure Sealants in the Prevention of Dental Caries. In Pit and Fissure Sealants. 2018: 35-50.
[5]. Kasuma N, Fitriana A, Fajrin FN. Comparison of Caries Occurence Between Resin Based and Glass Ionomer Based Pit and Fissure Sealants in Young Permanent Molars After One Year Application. Glob. J. Health Sci. 2018;10(10):178.
[6]. Arrondo JL, Collado MI, Soler I, Triana R, Ellacuria J. Setting reaction of polyacid modified composite resins or compomers. Open Dent J. 2009;3:197-201.
[7]. Deery C. Caries detection and diagnosis, sealants and management of the possibly carious fissure. Br Dent J. 2013 Jun;214(11):551-7.Pubmed PMID: 23744208.
[8]. Subramanyam D, Gurunathan D, Gaayathri R, Vishnu Priya V. Comparative evaluation of salivary malondialdehyde levels as a marker of lipid peroxidation in early childhood caries. Eur J Dent. 2018 Jan-Mar;12(1):67-70. Pubmed PMID: 29657527.
[9]. Ramadurai N, Gurunathan D, Samuel AV, Subramanian E, Rodrigues SJL. Effectiveness of 2% Articaine as an anesthetic agent in children: randomized controlled trial. Clin Oral Investig. 2019 Sep;23(9):3543–50.
[10]. Ramakrishnan M, Dhanalakshmi R, Subramanian EMG. Survival rate of different fixed posterior space maintainers used in Paediatric Dentistry - A systematic review. Saudi Dent J. 2019 Apr;31(2):165-172.Pubmed PMID: 30983825.
[11]. Jeevanandan G, Thomas E. Volumetric analysis of hand, reciprocating and rotary instrumentation techniques in primary molars using spiral computed tomography: An in vitro comparative study. Eur J Dent. 2018 Jan-Mar;12(1):21-26.Pubmed PMID: 29657521.
[12]. Princeton B, Santhakumar P, Prathap L. Awareness on Preventive Measures taken by Health Care Professionals Attending COVID-19 Patients among Dental Students. Eur J Dent. 2020 Dec;14(S 01):S105-S109.Pubmed PMID: 33321549.
[13]. Saravanakumar K, Park S, Mariadoss AVA, Sathiyaseelan A, Veeraraghavan

VP, Kim S, et al. Chemical composition, antioxidant, and anti-diabetic activities of ethyl acetate fraction of Stachys riederi var. japonica (Miq.) in streptozotocin-induced type 2 diabetic mice. Food Chem Toxicol. 2021 Sep;155:112374.Pubmed PMID: 34186120.

[14]. Wei W, Li R, Liu Q, Seshadri VD, Veeraraghavan VP, Mohan SK, et al. Amelioration of oxidative stress, inflammation and tumor promotion by Tin oxide-Sodium alginate-Polyethylene glycol-Allyl isothiocyanate nanocomposites on the 1, 2-Dimethylhydrazine induced colon carcinogenesis in rats. Arab. J. Chem. 2021 Jun 3;14(8):103238.

[15]. Gothandam K, Ganesan VS, Ayyasamy T, Ramalingam S. Antioxidant potential of theaflavin ameliorates the activities of key enzymes of glucose metabolism in high fat diet and streptozotocin - induced diabetic rats. Redox Rep. 2019 Dec;24(1):41-50.Pubmed PMID: 31142215.

[16]. Su P, Veeraraghavan VP, Krishna Mohan S, Lu W. A ginger derivative, zingerone-a phenolic compound-induces ROS-mediated apoptosis in colon cancer cells (HCT-116). J Biochem Mol Toxicol. 2019 Dec;33(12):e22403. Pubmed PMID: 31714660.

[17]. Mathew MG, Samuel SR, Soni AJ, Roopa KB. Evaluation of adhesion of Streptococcus mutans, plaque accumulation on zirconia and stainless steel crowns, and surrounding gingival inflammation in primary molars: randomized controlled trial. Clin Oral Investig. 2020 Sep;24(9):3275-3280.Pubmed PMID: 31955271.

[18]. Sekar D, Johnson J, Biruntha M, Lakhmanan G, Gurunathan D, Ross K. Biological and clinical relevance of microRNAs in mitochondrial diseases/dysfunctions. DNA Cell Biol. 2020 Aug 1;39(8):1379-84.

[19]. Velusamy R, Sakthinathan G, Vignesh R, Kumarasamy A, Sathishkumar D, Priya KN, et al. Tribological and thermal characterization of electron beam physical vapor deposited single layer thin film for TBC application. Surf Topogr: Metrol Prop. 2021 Jun 24;9(2):025043.

[20]. Aldhuwayhi S, Mallineni SK, Sakhamuri S, Thakare AA, Mallineni S, Sajja R, et al. Covid-19 Knowledge and Perceptions Among Dental Specialists: A Cross-Sectional Online Questionnaire Survey. Risk Manag Healthc Policy. 2021 Jul 7;14:2851-2861.Pubmed PMID: 34262372.

[21]. Sekar D, Nallaswamy D, Lakshmanan G. Decoding the functional role of long noncoding RNAs (lncRNAs) in hypertension progression. Hypertens Res. 2020 Jul;43(7):724-725.Pubmed PMID: 32235913.

[22]. Bai L, Li J, Panagal M, M B, Sekar D. Methylation dependent microRNA 1285-5p and sterol carrier proteins 2 in type 2 diabetes mellitus. Artif Cells Nanomed Biotechnol. 2019 Dec;47(1):3417-3422.Pubmed PMID: 31407919.

[23]. Sekar D. Circular RNA: a new biomarker for different types of hypertension. Hypertens Res. 2019 Nov;42(11):1824-5.

[24]. Sekar D, Mani P, Biruntha M, Sivagurunathan P, Karthigeyan M. Dissecting the functional role of microRNA 21 in osteosarcoma. Cancer Gene Ther. 2019 Jul;26(7-8):179-182.Pubmed PMID: 30905966.

[25]. Duraisamy R, Krishnan CS, Ramasubramanian H, Sampathkumar J, Mariappan S, Navarasampatti Sivaprakasam A. Compatibility of Nonoriginal Abutments With Implants: Evaluation of Microgap at the Implant-Abutment Interface, With Original and Nonoriginal Abutments. Implant Dent. 2019 Jun;28(3):289-295.Pubmed PMID: 31124826.

[26]. Parimelazhagan R, Umapathy D, Sivakamasundari IR, Sethupathy S, Ali D, Kunka Mohanram R, et al. Association between Tumor Prognosis Marker Visfatin and Proinflammatory Cytokines in Hypertensive Patients. Biomed Res Int. 2021 Mar 16;2021:8568926.Pubmed PMID: 33816632.

[27]. Syed MH, Gnanakkan A, Pitchiah S. Exploration of acute toxicity, analgesic, anti-inflammatory, and anti-pyretic activities of the black tunicate, Phallusia nigra (Savigny, 1816) using mice model. Environ Sci Pollut Res Int. 2021 Feb;28(5):5809-5821.Pubmed PMID: 32978735.

[28]. Lakshmanan L, Ravindran V, Ravindran V, Subramanian EM. Utilization of Sealants and Conservative Adhesive Resin Restoration for Caries Prevention by Dental Students. Indian J. Forensic Med. Toxicol. 2020 Oct 1;14(4):5865.

[29]. Cvikl B, Moritz A, Bekes K. Pit and Fissure Sealants-A Comprehensive Review. Dent J (Basel). 2018 Jun 12;6(2):18.Pubmed PMID: 29895726.

[30]. Pandiyan I, Raj SS, Balasubramaniam A. Association between Gender and Prevalence of Pit and Fissure Caries among Patients Visiting Private Dental College - A Retrospective study. Int. j. res. pharm. sci. 2020;11:568–73.

[31]. Oulis CJ, Berdouses ED, Mamai-Homata E, Polychronopoulou A. Prevalence of sealants in relation to dental caries on the permanent molars of 12 and 15-year-old Greek adolescents. A national pathfinder survey. BMC Public Health. 2011 Dec;11(1):100.

[32]. Veiga NJ, Pereira CM, Ferreira PC, Correia IJ. Prevalence of dental caries and fissure sealants in a Portuguese sample of adolescents. PLoS One. 2015 Mar 24;10(3):e0121299.Pubmed PMID: 25803849.

[33]. Alwayli HM, Alshiha SA, Alfraih YK, Hattan MA, Alamri AA, Aldossary MS. A survey of fissure sealants and dental caries prevalence in the first permanent molars among primary school girls in Riyadh, Saudi Arabia. Eur J Dent. 2017 Oct-Dec;11(4):455-460.Pubmed PMID: 29279670.

[34]. Simonsen RJ, Neal RC. A review of the clinical application and performance of pit and fissure sealants. Aust. Dent. J. 2011 Jun;56:45-58.

[35]. Naaman R, El-Housseiny AA, Alamoudi N. The use of pit and fissure sealants—A literature review. Dent. J. 2017 Dec;5(4):34.