



Teeth and Gender Distribution of Dental Caries in The Patients Of 18-25 Years Age Group - An Institution Based Retrospective Study

Maajida Aafreen M¹, Sowmya K^{2*}, Deepa Gurunathan³

¹Research Associate, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai-77, India.

Email : 151601046@saveetha.com

²Senior lecturer, Department of Conservative Dentistry and Endodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai-77, India.

Email : sowmyak.sdc@saveetha.com

³Professor and the Head, Department of Pedodontics, Saveetha Dental college & Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai-77, India.

Email : Deepag@saveetha.com

ABSTRACT

The global prevalence of dental caries is very high and reaches upto 95% in developing nations. Dental caries is considered a multifactorial and dynamic microbiological disease that causes destruction of the teeth. The aim of this study was to evaluate the teeth and gender distribution of dental caries in patients between the age groups of 18 to 25 years. The data of patients of 18 to 25 years of age who reported to Saveetha dental college between June 2019 to March 2020 were collected and analysed. The results were tabulated in the excel sheet. The data analysis was done using the SPSS software (IBM corp. Version 20.0). A total of 7577 cases were evaluated and tabulated. The total number of teeth with caries were 16630. Caries were found more in mandibular arch (56.16%) than in maxillary arch (43.83%). Molars had the highest number of dental caries compared to premolars and the anterior teeth in both maxillary and mandibular arches. Number of caries was higher in males than females and this association was statistically significant (P value- 0.002; Chi square test). It can be concluded from the study that the dental caries was more prevalent among the male gender and present more in the mandibular arch.

ARTICLE HISTORY

Received February 11 2020,
Accepted March 01, 2020
Published August 18, 2020

KEYWORDS

Dental caries, Dynamic,
Destruction, Multifactorial.

* **Contact:** Sowmya K, Senior lecturer, Department of Conservative Dentistry and Endodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai-77, India., Ph.no: +919566231240 sowmyak.sdc@saveetha.com

2020 The Authors. This is an open access article under the terms of the Creative Commons Attribution Non Commercial Share Alike 4.0 (<https://creativecommons.org/licenses/by-nc-sa/4.0/>).

INTRODUCTION

Dental caries has been a major health concern for the population across the world.[1] Destruction brought about by caries has a negative impact on the quality of life of the affected individuals and high economic costs for both the individuals and society, with discrepancies related to issues of socioeconomic status, lack of preventive efforts and dietary changes.[2] Dental caries have a high prevalence worldwide. According to the data bank produced by the global oral health, the prevalence of caries varies from 49% to 83% across different countries.[3] Dental caries have shown a negative impact on the health and quality of life irrespective of the age. In India, the prevalence of dental caries is reported to be around 50-60%.[4]

Bacteria plays a critical role in the formation as well as the progression of pulp and periapical disease.[5] Bacterial fermentation of dietary carbohydrates produces acidic by-products that causes localised destruction of susceptible dental hard tissue. An imbalance in the physiologic equilibrium between the tooth mineral and the plaque pH results in demineralisation and remineralisation processes going on side by side.[6] Although the rate of caries prevalence has decreased in developed countries, it still continues to be an important disease in most of the developing countries. Various studies have shown that dental caries still prevails as a major problem in the adult population of both developing and industrialised nations.[7],[8]

The presence of dental caries can cause a substantial amount of tooth loss.[9],[10] Proper diagnosis plays an important part in treatment planning.[11] Dental caries begin as a painless white spot, followed by cavitation. Once the caries reaches the dentin, pain may result from thermal, mechanical or chemical stimulation and its progression may cause injury to the pulp and the surrounding peri radicular tissues.[12] Eventually the pulp becomes necrosed and may lead to the formation of abscess, granuloma or cyst.[13] Treating the disease earlier can boost the self-esteem and confidence of the patient, thereby enhancing the quality of life of the patient.[14] Maintaining good oral hygiene and the usage of fluoridated toothpaste and mouthwashes can help in preventing dental caries. Early treatment can help in preventing continuing damage to the orofacial structures as well as the teeth.[15],[16]

The majority of the Indian studies have focused on school children and only limited studies have been done in the adult population.[17],[18] Dental caries is a global disease that can be easily prevented and controlled through a combination of suitable community, professional and individual actions. Early detection is crucial to control of the oral condition. An oral examination under adequate

light can identify many oral conditions in the early stages.[19]

Previously our team had conducted numerous clinical trials and in vitro studies. Previously we have focused our research on various invitro and invivo studies. [20–39] over the past 5 years. Now we are focusing on retrospective studies

The need for this type of research is to get a more lucid insight into the disease pattern and the distribution to aid in formulating a good treatment plan. The aim of the study was to systematically and qualitatively evaluate the teeth and gender distribution of dental caries in patients of age group 18-25 years.

MATERIALS AND METHODS

This is a retrospective study carried out in a university setting. The main advantage of this type of study is easy access to the data. The ethical approval was obtained from the university to access patients' records. The patient record was collected from June 2019 to March 2020. The case sheets were analysed and reviewed. The total number of patients in the 18 to 25 age group was 7577. All the teeth except the third molars were included for evaluation. Teeth having visible cavitation, 'catch' on probing or radiographic evidence of caries were included as caries. The details of teeth with caries were tabulated in the excel sheet. The patients were grouped according to the number of caries present as: No caries, 1-5 caries, 6-10 caries, 11-15 caries and 16-20 caries groups. SPSS software (IBM corp. Version 20.0) has been used for data analysis. Descriptive analysis was used for calculating frequency and percentage. The results of the study were presented in the form of tables and graphs.

RESULTS AND DISCUSSION

The total number of carious teeth present were 16630. The number and percentage of dental caries in individual teeth of maxillary and mandibular arches are given in Table 1 and Table 2. In the maxillary arch, the distribution of caries was the highest in molars (80.3%), followed by premolars (11.9%) and anteriors (7.8%) [Table 3]. The mandibular arch showed a similar distribution of caries being highest in the molars (94.2%), followed by premolars (5.4%) and anteriors (0.6%) [Table 3]. The distribution of caries was higher in the mandibular arch (56.16%) than the maxillary arch (43.3%). For the molar teeth, caries distribution was higher in the mandibular arch than the maxillary arch whereas for premolars and anteriors, caries distribution was higher in maxillary arch than the mandibular arch [Table 3]. Dental caries is one of the most universal non communicable infections with an overall prevalence of 35% for all ages consolidated, adding

to the global burden of diseases.[40] It shows an increasing prevalence in middle income countries like India.[41] Microorganisms causing dental caries including gram positive bacteria and fungi are responsible for pulp and periapical pathologies.[41]-[42] The disease can further get aggravated due to the presence of various proteins and enzymes in the body such as matrix metalloproteins which play an important role in acute pulp destruction in an inflamed pulp.[43] Additionally, dental caries in permanent teeth can also lead to functional and aesthetic problems.[44] In extreme cases, it can also lead to loss of tooth.[45] Untreated caries resulted in a mean health loss of 4562 years (disability-adjusted life years) per 100,000 population in 2010.[46] Dental caries can be easily detected and often reversible if treated at an early stage.[47]

Among the 7577 patients included in this study, 3036 patients had no caries. The maximum number of patients (3548 patients) in this study were found to have 1-5 caries and the least number of patients (3 patients) were found to have 16-20 caries [Figure 1].

In this study, the maximum number of caries were found in the mandibular arch (56.16%). This finding coincides with previous studies which also reported caries to be more prevalent in the mandibular arch.[48,49] However, another study showed results different from our study, with caries was more prevalent in the maxillary arch.[50]

In the current study, molars were found to be more affected compared to premolars and incisors which was similar to the results of a previous study.[51] The higher prevalence of the caries in the molars could be explained by their early eruption in the oral cavity and poor oral hygiene maintenance as the child may lack the manual dexterity required for proper brushing. In addition, the anatomy of the occlusal surface of molar teeth results in food retention as it escapes the flushing activity of the saliva. The occlusal surface of permanent molars contains pits and fissures which can trap debris and bacteria, thus increasing the risk of developing a carious lesion. It can be prevented with the use of sealants which penetrates the pits and fissures and forms a physical barrier, thereby stopping the growth of bacteria.[52] Mandibular anteriors were the least affected by caries, probably because of constant cleaning and flushing action of saliva and tongue.[53]

In our study, the prevalence of caries was higher in males than females and this association was found to be statistically significant (P value- 0.002; Chi square test) [Table 4/ Figure 2]. This was in contrast to one study that reported a higher frequency of dental caries in females[54] and

another study that reported no significant difference in caries frequency between the genders[55]. This difference in prevalence between gender could be attributed to the different age groups as well as different geographic locations.

The future scope for the study is the inclusion of other geographic populations and finding an association with oral habits and socio economic status.

CONCLUSION

Within the limits of this study, it was seen that the distribution of caries was high in molars, in the mandibular arch and in the male population. Maintaining good oral hygiene and frequent visits to the dentist can help in prevention and early intervention of dental caries.

AUTHOR CONTRIBUTIONS

Maajida Aafreen carried out the design of the work, data collection, data analysis and interpretation. Sowmya K carried out the drafting of the article. Deepa G carried out the critical evaluation of the article. All the authors have read and approved the final manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

FUNDING

Self.

Ethical Clearance

It is taken from "Saveetha Institute Human Ethical Committee" (Ethical Approval Number- SDC/SIHEC/2020/DIASDATA/0619-0320)

REFERENCES

1. Kamberi B, Koçani F, Begzati A, Kelmendi J, Ilijazi D, Berisha N, et al. Prevalence of Dental Caries in Kosovar Adult Population. *Int J Dent* [Internet]. 2016 Jul 19 [cited 2020 Jun 3];2016. Available from: <https://www.hindawi.com/journals/ijjd/2016/4290291/abs/>
2. Bagramian RA, Garcia-Godoy F, Volpe AR, Others. The global increase in dental caries. A pending public health crisis. *Am J Dent*. 2009;22(1):3-8.
3. Frencken JE, Sharma P, Stenhouse L, Green D, Laverty D, Dietrich T. Global epidemiology of dental caries and severe periodontitis - a comprehensive review [Internet]. Vol. 44, *Journal of Clinical Periodontology*. 2017. p. S94-105. Available from: <http://dx.doi.org/10.1111/jcpe.12677>
4. Shah N. Oral and dental diseases: Causes,

- prevention and treatment strategies. National Commission on Macroeconomics and Health Background Papers-Burden of Disease in India. 2005;275-98.
5. Manohar M, Sharma S. A survey of the knowledge, attitude, and awareness about the principal choice of intracanal medicaments among the general dental practitioners and nonendodontic specialists [Internet]. Vol. 29, Indian Journal of Dental Research. 2018. p. 716. Available from: http://dx.doi.org/10.4103/ijdr.ijdr_716_16
 6. Fontana M, Young DA, Wolff MS, Pitts NB, Longbottom C. Defining Dental Caries for 2010 and Beyond [Internet]. Vol. 54, Dental Clinics of North America. 2010. p. 423-40. Available from: <http://dx.doi.org/10.1016/j.cden.2010.03.007>
 7. Luan W-M, Baelum V, Fejerskov O, Chen X. Ten-Year Incidence of Dental Caries in Adult and Elderly Chinese. Caries Res. 2000;34(3):205-13.
 8. Treasure E, Kelly M, Nuttall N, Nunn J, Bradnock G, White D. Factors associated with oral health: a multivariate analysis of results from the 1998 Adult Dental Health survey. Br Dent J. 2001 Jan 1;190(2):60-8.
 9. Ramanathan S, Solete P. Cone-beam Computed Tomography Evaluation of Root Canal Preparation using Various Rotary Instruments: An in vitro Study. J Contemp Dent Pract. 2015;16(11):869-72.
 10. Hussainy SN, Nasim I, Thomas T, Ranjan M. Clinical performance of resin-modified glass ionomer cement, flowable composite, and polyacid-modified resin composite in noncarious cervical lesions: One-year follow-up. J Conserv Dent. 2018;21(5):510.
 11. Janani K, Palanivelu A, Sandhya R. Diagnostic accuracy of dental pulse oximeter with customized sensor holder, thermal test and electric pulp test for the evaluation of pulp vitality: an in vivo study. Brazilian Dental Science. 2020;23(1):8.
 12. Ramamoorthi S, Nivedhitha MS, Divyanand MJ. Comparative evaluation of postoperative pain after using endodontic needle and EndoActivator during root canal irrigation: a randomised controlled trial. Aust Endod J. 2015;41(2):78-87.
 13. Holt R. Dental damage, sequelae, and prevention [Internet]. Vol. 174, Western Journal of Medicine. 2001. p. 288-90. Available from: <http://dx.doi.org/10.1136/ewjm.174.4.288>
 14. Ravinthar K, Others. Recent Advancements in Laminates and Veneers in Dentistry. Research Journal of Pharmacy and Technology. 2018;11(2):785-7.
 15. Jose J, P. A, Subbaiyan H. Different Treatment Modalities followed by Dental Practitioners for Ellis Class 2 Fracture – A Questionnaire-based Survey [Internet]. Vol. 14, The Open Dentistry Journal. 2020. p. 59-65. Available from: <http://dx.doi.org/10.2174/1874210602014010059>
 16. Nasim I, Nandakumar M. Comparative evaluation of grape seed and cranberry extracts in preventing enamel erosion: An optical emission spectrometric analysis [Internet]. Vol. 21, Journal of Conservative Dentistry. 2018. p. 516. Available from: http://dx.doi.org/10.4103/jcd.jcd_110_18
 17. Vacher BR. Dental survey of school children in Amritsar (Punjab). J Indian Dent Assoc. 1952;24:13.
 18. Shah N, Sundaram KR. Impact of socio-demographic variables, oral hygiene practices, oral habits and diet on dental caries experience of Indian elderly: a community-based study [Internet]. Vol. 21, Gerodontology. 2004. p. 43-50. Available from: <http://dx.doi.org/10.1111/j.1741-2358.2004.00010.x>
 19. Patro BK, Ravi Kumar B, Goswami A, Mathur VP, Nongkynrih B. Prevalence of dental caries among adults and elderly in an urban resettlement colony of New Delhi. Indian J Dent Res. 2008 Apr 1;19(2):95.
 20. Rajeshkumar S, Kumar SV, Ramaiah A, Agarwal H, Lakshmi T, Roopan SM. Biosynthesis of zinc oxide nanoparticles using *Mangifera indica* leaves and evaluation of their antioxidant and cytotoxic properties in lung cancer (A549) cells. Enzyme Microb Technol. 2018 Oct;117:91-5.
 21. Kavitha M, Subramanian R, Narayanan R, Udhayabanu V. Solution combustion synthesis and characterization of strontium substituted hydroxyapatite nanocrystals [Internet]. Vol. 253, Powder Technology. 2014. p. 129-37. Available from: <http://dx.doi.org/10.1016/j.powtec.2013.10.045>
 22. Vijayakumar GNS, Nixon Samuel Vijayakumar G, Devashankar S, Rathnakumari M, Sureshkumar P. Synthesis of electrospun ZnO/CuO nanocomposite fibers and their dielectric and non-linear optic studies [Internet]. Vol. 507, Journal of Alloys and Compounds. 2010. p. 225-9. Available from: <http://dx.doi.org/10.1016/j.jallcom.2010.07.161>
 23. Danda AK. Comparison of a single noncompression miniplate versus 2 noncompression miniplates in the treatment

- of mandibular angle fractures: a prospective, randomized clinical trial. *J Oral Maxillofac Surg.* 2010 Jul;68(7):1565–7.
24. Lekha L, Kanmani Raja K, Rajagopal G, Easwaramoorthy D. Synthesis, spectroscopic characterization and antibacterial studies of lanthanide(III) Schiff base complexes containing N, O donor atoms [Internet]. Vols. 1056-1057, *Journal of Molecular Structure.* 2014. p. 307–13. Available from: <http://dx.doi.org/10.1016/j.molstruc.2013.1.0.014>
 25. Putchala MC, Ramani P, Herald J. Sherlin, Premkumar P, Natesan A. Ascorbic acid and its pro-oxidant activity as a therapy for tumours of oral cavity – A systematic review [Internet]. Vol. 58, *Archives of Oral Biology.* 2013. p. 563–74. Available from: <http://dx.doi.org/10.1016/j.archoralbio.2013.01.016>
 26. Devi VS, Subathra Devi V, Gnanavel BK. Properties of Concrete Manufactured Using Steel Slag [Internet]. Vol. 97, *Procedia Engineering.* 2014. p. 95–104. Available from: <http://dx.doi.org/10.1016/j.proeng.2014.12.229>
 27. Dhinesh B, Niruban Bharathi R, Isaac JoshuaRamesh Lalvani J, Parthasarathy M, Annamalai K. An experimental analysis on the influence of fuel borne additives on the single cylinder diesel engine powered by *Cymbopogon flexuosus* biofuel [Internet]. Vol. 90, *Journal of the Energy Institute.* 2017. p. 634–45. Available from: <http://dx.doi.org/10.1016/j.joei.2016.04.010>
 28. Danda AK, Tatiparthi MK, Narayanan V, Siddareddi A. Influence of Primary and Secondary Closure of Surgical Wound After Impacted Mandibular Third Molar Removal on Postoperative Pain and Swelling—A Comparative and Split Mouth Study [Internet]. Vol. 68, *Journal of Oral and Maxillofacial Surgery.* 2010. p. 309–12. Available from: <http://dx.doi.org/10.1016/j.joms.2009.04.060>
 29. Gopalakannan S, Senthilvelan T, Ranganathan S. Modeling and Optimization of EDM Process Parameters on Machining of Al 7075-B4C MMC Using RSM [Internet]. Vol. 38, *Procedia Engineering.* 2012. p. 685–90. Available from: <http://dx.doi.org/10.1016/j.proeng.2012.06.086>
 30. Venu H, Dhana Raju V, Subramani L. Combined effect of influence of nano additives, combustion chamber geometry and injection timing in a DI diesel engine fuelled with ternary (diesel-biodiesel-ethanol) blends [Internet]. Vol. 174, *Energy.* 2019. p. 386–406. Available from: <http://dx.doi.org/10.1016/j.energy.2019.02.163>
 31. Adalarasan R, Santhanakumar M, Rajmohan M. Application of Grey Taguchi-based response surface methodology (GT-RSM) for optimizing the plasma arc cutting parameters of 304L stainless steel [Internet]. Vol. 78, *The International Journal of Advanced Manufacturing Technology.* 2015. p. 1161–70. Available from: <http://dx.doi.org/10.1007/s00170-014-6744-0>
 32. Parthasarathy M, Isaac JoshuaRamesh Lalvani J, Dhinesh B, Annamalai K. Effect of hydrogen on ethanol-biodiesel blend on performance and emission characteristics of a direct injection diesel engine. *Ecotoxicol Environ Saf.* 2016 Dec;134(Pt 2):433–9.
 33. Neelakantan P, Cheng CQ, Mohanraj R, Sriraman P, Subbarao C, Sharma S. Antibiofilm activity of three irrigation protocols activated by ultrasonic, diode laser or Er:YAG laser in vitro [Internet]. Vol. 48, *International Endodontic Journal.* 2015. p. 602–10. Available from: <http://dx.doi.org/10.1111/iej.12354>
 34. Sajjan D, Udaya Lakshmi K, Erdogdu Y, Joe IH. Molecular structure and vibrational spectra of 2,6-bis(benzylidene)cyclohexanone: a density functional theoretical study. *Spectrochim Acta A Mol Biomol Spectrosc.* 2011 Jan;78(1):113–21.
 35. Sharma P, Mehta M, Dhanjal DS, Kaur S, Gupta G, Singh H, et al. Emerging trends in the novel drug delivery approaches for the treatment of lung cancer. *Chem Biol Interact.* 2019 Aug 25;309:108720.
 36. Ranganathan H, Ganapathy DM, Jain AR. Cervical and Incisal Marginal Discrepancy in Ceramic Laminate Veneering Materials: A SEM Analysis. *Contemp Clin Dent.* 2017 Apr;8(2):272–8.
 37. Lekha L, Kanmani Raja K, Rajagopal G, Easwaramoorthy D. Schiff base complexes of rare earth metal ions: Synthesis, characterization and catalytic activity for the oxidation of aniline and substituted anilines [Internet]. Vol. 753, *Journal of Organometallic Chemistry.* 2014. p. 72–80. Available from: <http://dx.doi.org/10.1016/j.jorganchem.2013.12.014>
 38. Neelakantan P, Grotra D, Sharma S. Retreatability of 2 mineral trioxide aggregate-based root canal sealers: a cone-beam computed tomography analysis. *J*

- Endod. 2013 Jul;39(7):893–6.
39. PradeepKumar AR, Shemesh H, Jothilatha S, Vijayabharathi R, Jayalakshmi S, Kishen A. Diagnosis of Vertical Root Fractures in Restored Endodontically Treated Teeth: A Time-dependent Retrospective Cohort Study. *J Endod.* 2016 Aug;42(8):1175–80.
 40. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. *Bull World Health Organ.* 2005 Sep;83:661–9.
 41. Tanwir F, Altamash M, Gustafsson A. Influence of betel nut chewing, dental care habits and attitudes on perceived oral health among adult Pakistanis. *Oral Health Prev Dent [Internet].* 2008;6(2). Available from: https://www.researchgate.net/profile/Tanwir_Farzeen/publication/51411645_Influence_of_Betel_Nut_Chewing_Dental_Care_Habits_and_Attitudes_on_Perceived_Oral_Health_among_Adult_Pakistanis/links/560ab9eb08ae576ce640e1ac/Influence-of-Betel-Nut-Chewing-Dental-Care-Habits-and-Attitudes-on-Perceived-Oral-Health-among-Adult-Pakistanis.pdf
 42. Noor SSSE, S Syed Shihaab, Pradeep. Chlorhexidine: Its properties and effects [Internet]. Vol. 9, *Research Journal of Pharmacy and Technology.* 2016. p. 1755. Available from: <http://dx.doi.org/10.5958/0974-360x.2016.00353.x>
 43. Teja KV, Ramesh S, Priya V. Regulation of matrix metalloproteinase-3 gene expression in inflammation: A molecular study. *J Conserv Dent.* 2018;21(6):592.
 44. R R, Rajakeerthi R, Ms N. Natural Product as the Storage medium for an avulsed tooth – A Systematic Review [Internet]. Vol. 22, *Cumhuriyet Dental Journal.* 2019. p. 249–56. Available from: <http://dx.doi.org/10.7126/cumudj.525182>
 45. Kumar D, Antony S. Calcified Canal and Negotiation-A Review. *Research Journal of Pharmacy and Technology.* 2018;11(8):3727–30.
 46. Marcenes W, Kassebaum NJ, Bernabé E, Flaxman A, Naghavi M, Lopez A, et al. Global Burden of Oral Conditions in 1990-2010: A Systematic Analysis. *J Dent Res.* 2013 Jul 1;92(7):592–7.
 47. Rajendran R, Kunjusankaran RN, Sandhya R, Anilkumar A, Santhosh R, Patil SR. Comparative Evaluation of Remineralizing Potential of a Paste Containing Bioactive Glass and a Topical Cream Containing Casein Phosphopeptide-Amorphous Calcium Phosphate: An in Vitro Study. *Pesqui Bras Odontopediatria Clin Integr [Internet].* 2019;19. Available from: http://www.scielo.br/scielo.php?pid=S1983-46322019000100364&script=sci_arttext
 48. Saravanan S, Madivanan I, Subashini B, Felix JW. Prevalence pattern of dental caries in the primary dentition among school children. *Indian J Dent Res.* 2005 Oct 1;16(4):140.
 49. Kutesa A, Mwanika A, Wandera M. Pattern of dental caries in Mulago Dental School clinic, Uganda. *Afr Health Sci.* 2005 Apr 29;5(1):65–8.
 50. Qazi HS, Azam S, Khurram MS, Zia AU. PREVALENCE OF DENTAL CARIES IN THE PERMANENT DENTITION OF PATIENTS SEEKING ORTHODONTIC TREATMENT IN BARA KAHU. *Pakistan Oral & Dental Journal [Internet].* 2011;31(2). Available from: <http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=10128700&asa=Y&AN=71528467&h=%2BaFroyARRK15QGQiBuy57Yn%2FPiWyYRKRScpfVFqcxYo6Oelgjd3iEdQY4IUOY%2FBLY9jfNbTBx8FXc0c11mLA%3D%3D&crl=c>
 51. Khan AA, Jain SK, Shrivastav A. Prevalence of dental caries among the population of Gwalior (India) in relation of different associated factors. *Eur J Dent.* 2008;2(02):081–5.
 52. Wright JT, Tampi MP, Graham L, Estrich C, Crall JJ, Fontana M, et al. Sealants for Preventing and Arresting Pit-and-fissure Occlusal Caries in Primary and Permanent Molars. *Pediatr Dent.* 2016;38(4):282–308.
 53. Mehmood Khan A, Mariyum S. FREQUENCY AND DISTRIBUTION OF DENTAL CARIES IN TEETH AND ARCHES OF PATIENTS EXAMINED AT PUNJAB DENTAL HOSPITAL, LAHORE. *Pakistan Oral & [Internet].* 2015; Available from: <http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=10128700&AN=115820783&h=6Qdrr20g7ZX1NFVx6gTFJ1FzJKdwoWqzoPR4p78tzKfWThy90jDJ56BGF7WKPCe4pxjOIBZWoiwYUZrtMqJr4w%3D%3D&crl=c>
 54. Mosha HJ, Ngilisho LAF, Nkwera H, Scheutz F, Poulsen S. Oral health status and treatment needs in different age groups in two regions of Tanzania [Internet]. Vol. 22, *Community Dentistry and Oral Epidemiology.* 1994. p. 307–10. Available from: <http://dx.doi.org/10.1111/j.1600-0528.1994.tb02057.x>
 55. Sevekar S, Shingare P, Jogani V, Patil S, Jha M. Dental Caries Prevalence among 3- to 14-Year-Old School Children, Uran, Raigad District, Maharashtra [Internet]. Vol. 2,

Table 1: Shows the number and percentage of caries in every tooth within the maxillary arch. Molars [T16, T17, T26, T27] had the highest number and percentage of caries (5848 & 80.3%) followed by premolars [T14, T15, T24, T25] (874 & 11.9%) and anteriors [T11, T12, T13, T21, T22, T23] (568 & 7.8%).

TOOTH NUMBER	NUMBER	PERCENTAGE (%)
T11	127	1.7%
T12	122	1.7%
T13	41	0.6%
T14	209	2.9%
T15	228	3.1%
T16	1331	18.3%
T17	1515	20.8%
T21	128	1.8%
T22	118	1.6%
T23	32	0.4%
T24	215	2.9%
T25	222	3.0%
T26	1364	18.7%
T27	1638	22.5%
TOTAL	7290	100.0%

Table 2: Shows the number and percentage of caries in every tooth within the mandibular arch. Molars [T36, T37, T46, T47] had the highest number and percentage of caries (8800 & 94.2%) followed by premolars [T34, T35, T244, T45] (498 & 5.4%) and anteriors [T31, T32, T33, T41, T42, T43] (42 & 0.6%).

TOOTH NUMBER	NUMBER	PERCENTAGE
T31	9	0.1%
T32	5	0.1%
T33	8	0.1%
T34	41	0.4%
T35	201	2.2%
T36	1845	19.8%
T37	2495	26.7%

T41	7	0.1%
T42	6	0.1%
T43	7	0.1%
T44	43	0.5%
T45	213	2.3%
T46	1954	20.9%
T47	2506	26.8%
TOTAL	9340	100.0%

Table 3: Shows the distribution of caries among the different teeth within maxillary and mandibular arches. In the maxillary arch, the highest percentage of caries was in the molars (80.30%) followed by premolars (11.90%) and anteriors (7.80%). Similarly, in the mandibular arch, the highest percentage of caries was in the molars (94.20%) followed by premolars (5.40%) and anteriors (0.60%).

	MAXILLA		MANDIBLE	
	Numbers	Percentage(%)	Number	Percentage(%)
Anteriors	568	7.8%	42	0.6%
Premolars	874	11.9%	498	5.4%
Molars	5848	80.3%	8800	94.2%

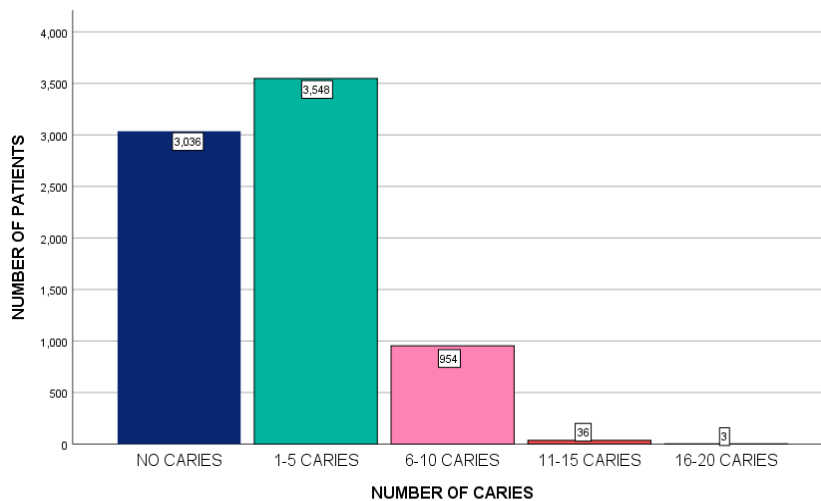


Figure 1: Bar diagram showing the frequency of the number of carious teeth in the total population. The X-axis represents the number of caries and the Y-axis represents the number of patients. The blue bar denotes no caries, light green bar denotes 1-5 caries, pink denotes 6-10 caries, red denotes 11-15 caries and purple denotes 16-20 caries.

Table 4: Table depicting the association between the gender of the patients and number of caries. A significant association was found between the number of caries and gender of the patients (P value- 0.002; Chi square test)

Gender	No of caries	1-5 Caries	6-10 Caries	11-15 Caries	16-20 Caries	Total	Pearson square P value	Chi
Female	1129	1319	403	21	2	2874	0.002	
Male	1907	2229	551	15	1	4703		
Total	3036	3548	954	36	3	7577		

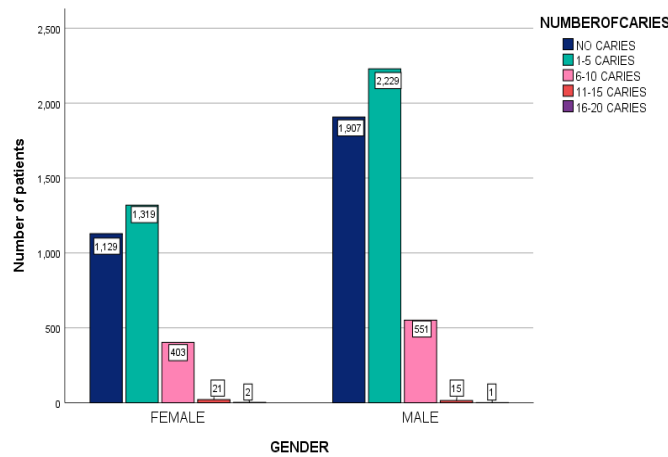


Figure 2: Bar diagram showing the association between the number of caries and the gender of the patients. The X-axis represents the number of caries and the Y-axis represents the number of patients. The blue bar denotes no caries, light green bar denotes 1-5 caries, pink denotes 6-10 caries, red denotes 11-15 caries and purple denotes 16-20 caries. Based on the graph, the number of caries present was higher in males than females and this association was statistically significant (P value- 0.002; Chi square test).