Vol. 5 No. 1 (2026)

Pakistan Journal of Medical & Cardiological Review

https://pakjmcr.com/index.php/1/about

Online ISSN 3007-2387

Print ISSN 3007-2379

PREVALENCE AND CAUSES OF EXTRACTION OF FIRST PERMANENT MOLAR IN PATIENTS VISITING A DENTAL TEACHING HOSPITAL, PESHAWAR

Aizaz Khan
Student at City University of Science and Information Technology
Malaika Hassan
Student at City University of Science and Information Technology
Ayesha Naveed
Student at City University of Science and Information Technology
Abid Khan
Student at City University of Science and Information Technology
Khadija Rehman
Student at City University of Science and Information Technology
Iqra Ijaz
Lecturer at College of Medical Technology Bacha Khan Medical College
Dr. Azaz Ali Shah
Lecturer at City University of Science and Information Technology
Dr. Ruqia Hayat
Lecturer at City University of Science and Information Technology
ruqiahayat48@gmail.com

Author Details

Keywords:
Endodontic failure, Extraction, First Permanent Molar, Caries

Received on 01 Dec, 2025
Accepted on 15 Jan, 2026
Published on 28 Jan, 2026

Corresponding E-mails & Authors*:
Dr. Ruqia Hayat
ruqiahayat48@gmail.com

Abstract

Background: The most prevalent chronic infectious illness is dental caries, which continues to be a serious issue in several cultural and ethnic groups leading to extractions. This study goal was to examine the factors that led adult population members to seek First Permanent Molar (FPM) Extraction.

Material and Methods: Study follows Cross Sectional Descriptive Study for about 6 months in Surgery Departments of Sardar Begum Dental College of Peshawar. Sampling Technique was Non-Probability Convenience Sampling Technique. A specially designed Questionnaire was completed over six-month period. The questionnaire was filled from 134

Pakistan Journal of Medical & Cardiological Review
https://pakjmcr.com/index.php/1/about
Online ISSN 3007-2387
Print ISSN 3007-2379

participants. Patients between the age of 18 years to 60 years, Age, gender, Arch, Quadrant and the cause of decay of First Permanent Molar were recorded.

Results: Out of 431 patients 134 patients have decayed first permanent molar. 18-29 age groups have done 41% of total extractions which is the highest number. Most of the extractions were in Right Lower quadrant about (32%). More extractions were occurred in Lower arch. (27%) patients have endodontic treated first permanent molar due to which it was extracted. Due to endodontic treatment failure highest number of extractions occurred.

Conclusion: The study's findings suggest that endodontic failure and carries are the main causes of the high rate of extraction.

INTRODUCTION

Teeth plays very crucial role in individuals life. Teeth serve more than one features, consisting of mastication, speech, digestion, and occlusion. Eruption of permanent dentition starts at 6 year and complete at 21 year of age (1) The first molar is a key teeth in the development of accurate overlap of each arches it has been noticed that the 1st permanent molar teeth is extra regularly liable to caries (2) The most widespread infectious disease is dental caries. 60% to 90% of school age children worldwide suffer from dental caries (3) extraction may be a good solution for the most badly afflicted molars, as stated in various guidance and guideline texts (4) PFMM are lost and more prone to caries because it has deep pits and fissures (5) Caries was show into be the primary cause of tooth extraction in Brazil, accounting for 70% of cases, compared to periodontal disease, which only accounted for 15% (6) The extraction process includes numbing the place with neighborhood anesthesia, carefully removing the teeth, and supplying aftercare instructions for correct healing (7) The maximum commonplace reason of tooth loss is caries, followed by using Molar Incisor Hypomineralization, periodontal illnesses, trauma, failed root canals, improperly occluded teeth, and impacted teeth. (8) The poor outcomes of early extraction may be avoided or reduced with the aid of organising the surest second for extraction and by means of early orthodontic and/or prosthetic remedy of the edentulous space. The most widespread infectious disease in the world

is dental caries. 60% to 90% of school- age children world wide suffer from dental cavities. (9) . When we plan dental health services, it's important to think about why people lose their teeth Early removal of Permanent first molars may also result in issues like as in tilting nearby teeth in the direction of the extraction site, dental extrusion of the opposing teeth that coincide asymmetrical midline shifts toward the extraction side issues with the gums and unilateral chewing from thinning of the alveolar bone in the e Various Numerous research from past research papers were carried out in precise local populations which have primarily targeted on caries, molar incisor hypo mineralization and periodontal illnesses as causes of FPM extraction there is a lack of complete records.(10) This observe pursuits to extend the knowledge via that specialize in different factors which include trauma, endodontic failure and impaction, in particular in Peshawar .xtraction cavity. There is a lack of comprehensive data on the frequency and causes of FPM extractions, particularly in Peshawar.(11) This knowledge gap hinders the development of targeted interventions to prevent FPM loss and promote optimal oral optimal oral health. (12)

Methods and Methodology

A survey was done for the patients that has undergone tooth extraction at Department of Oral and Maxillofacial Surgery in sardar begum college of dentistry in year 2024-2025. Research protocol was approved by the Ethical Committee 134 patients were included in the study ranging in age from 18 to 60 years. Patients were divided into seven age subgroups. Out of 134 patients 66% were male and 34% were female. An informed and written consent was taken before participating the study. The diagnosis was done based on both clinical and radiographic examination by one investigator. Reasons for tooth extraction were assigned to eight groups: tooth caries, periodontal disease, orthodontic, endoperio lesions, preprosthetic, patients request, trauma and other reasons (local pathology, tooth impaction, and iatrogenic). Additionally, frequency of tooth brushing and dental visit, sociodemographic data such as age, gender, residence place, education and income level were recorded for each participant. Data analysis were performed by SPSS ver. 21.0 (Chicago, IL, USA).

Obtained data were statistically analyzed by using descriptive statistics and chi-square test with a Significance level at $p<0.05$.

Results

Figure 1 shows age wise distribution of causes out Of total 134 participants, (41%) fall in age group 18-29, (26%) fall in age group 30-39, (18%) fall in age group 50-60, (15%) fall in age group 40-49

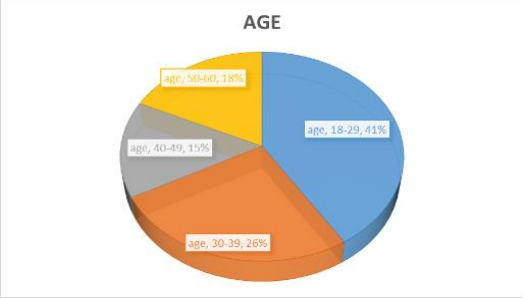
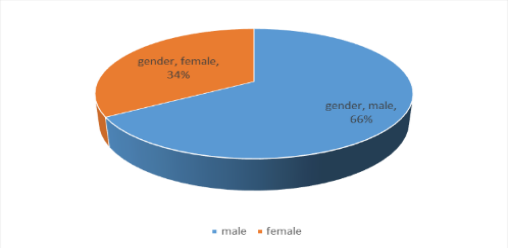


Figure 2 represent gender distribution of population. The chart is divided into categorizes males and females. Blue colour in this chart represents male which is 66% and red colour in this chart represent females which is 34% This shows gender imbalance with male dominancy.



In Figure 4 We catogarized into 6 groups. Extraction of 1st permanent molar mostly carried out in group of high school which is 25% followed by illiterate which is 24% ,primary school which is 22% , graduated which is 17% , under graduated which is 7% , post graduated which is 5%

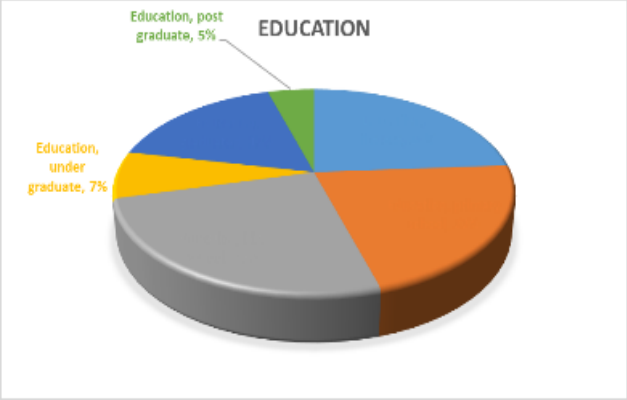


Figure 5 chat shows that mostly extractions were occurred in mandible which is about 59% and maxilla which is about 41%

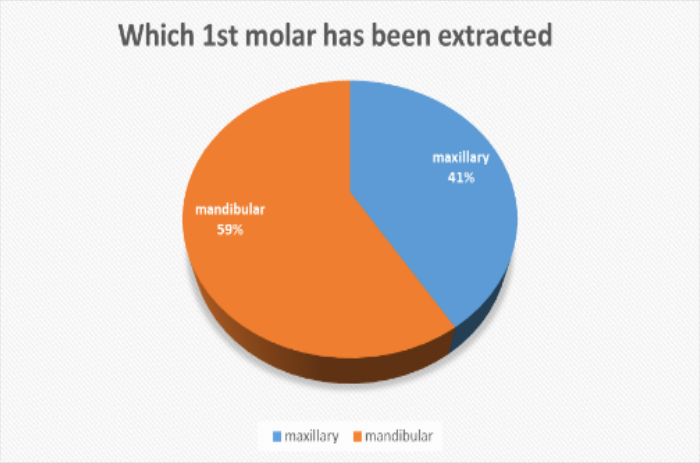
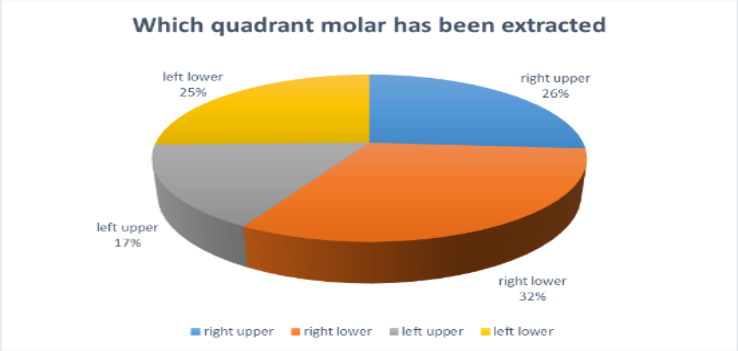
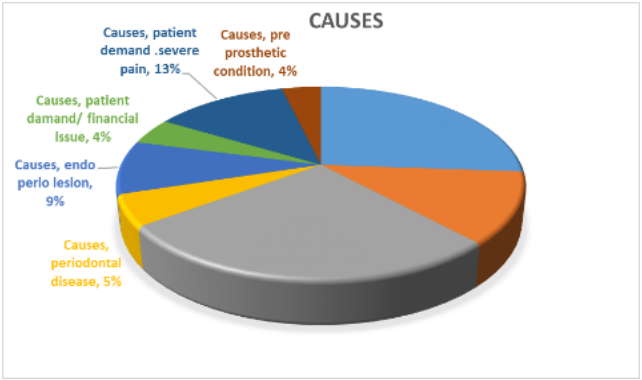


Figure 6 shows most of the extraction of first permanent molar is in right lower which is about 32% In right upper it is 26% In left lower it is about 25% and in left upper it is 17%



According to figure 7 main cause of extraction of first permanent molar is endodontically treated tooth which is about 27% followed by grossly carious26% patient demand severe pain which is about 13% , trauma 12%, endoperio lesion which is 9%, periodontal disease 5% , pre prosthetic condition which is 4% , patient demand financial issue 4%.



Pakistan Journal of Medical & Cardiological Review
https://pakjmcr.com/index.php/1/about
Online ISSN 3007-2387
Print ISSN 3007-2379

Figure 8 shows age wise distribution of different causes. We categorized age into four groups 18-29, 30-39, 40-49, 50-59 in which 18-29 is mostly effected by different causes.15 participants in 18-29 age group is effected by caries 12 participants of this age group extracted 1st permanent molar due to endodontic failure and 8 due to patient demand facing severe pain

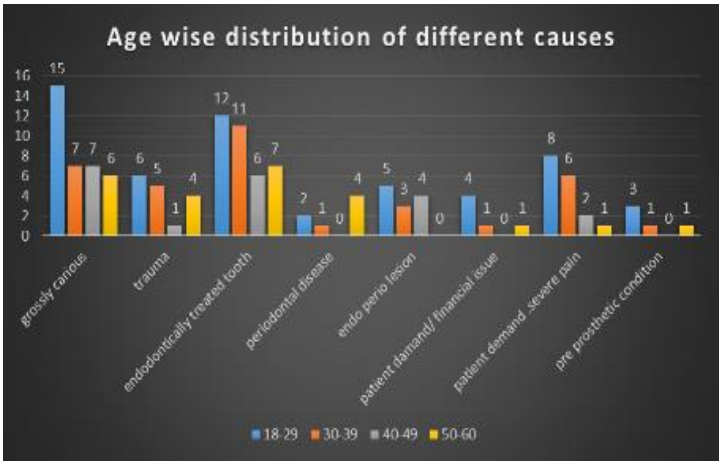


Table 1 represent gender wise distribution of causes in male 20 and in female 15 participant extracted 1 permanent molar due to caries, in males 10 and in female 6 due to trauma , in male 23 and in female 13 due to endo failure ,in male 5 and in female 2 due to periodontal disease ,in male 10 and in female 2 due to endoperio lesion, in male 4 and in female 2 due to patient demand / financial issue ,in male 15 and in female 2 due to patient demand /severe pain , in male 2 and in female 3 extracted 1st permanent molar due to pre prosthetic condition.

Gender wise distribution of causes			
Causes	Male	Female	P-value
Grossly carious	20	15	
Trauma	10	6	

Pakistan Journal of Medical & Cardiological Review
https://pakjmcr.com/index.php/1/about
Online ISSN 3007-2387
Print ISSN 3007-2379

Endo treated	23	13	0.301
Periodontal disease	5	2	
Endo perio lesion	10	2	
Patient demand/financial issue	4	2	
Patient demand/severe pain	15	2	
Pre prosthetic condition	2	3	

Table 2 represent the age wise distribution of gender 18 -29 age group has the highest number of participant with 34 males and 21 females (Total 55 people)40 – 49 age group has lowest number of participant with 12 males and 8 females (total 20 people).

TABLE :2

AGE	Male	Female	Total
18-29	34	21	55
30-39	26	9	35
40-49	12	8	20
50-60	17	7	24
TOTAL	89	45	134

Table:3 shows Most of the endodontic cases are from right lower molars while grossly carious teeth are 12 in right upper No cases are reported from right upper which are periodontically effected or are pre prosthetically effected.

Quadrant wise distribution of causes					
Causes	ight upper	ight lower	eft upper	eft lower	-value
Grossly carious	12	10	5	7	
Trauma	5	6	1	4	

Pakistan Journal of Medical & Cardiological Review
https://pakjmcr.com/index.php/1/about
Online ISSN 3007-2387
Print ISSN 3007-2379

Endo treated	7	12	7	10	
Periodontal disease	0	2	1	4	0.622
Endo perio lesion	3	3	2	4	
Patient demand /financial issue	1	2	2	1	
Patient demand/severe pain	7	5	1	4	
Pre prosthetic condition	0	3	2	0	

Discussion

In the current study 134 (31.09%) patients have extracted first molar out of total 431patients visiting surgery department. The mandibular first molar is most usually extracted. The majority of patients in the current study had their first permanent molars extracted because of endodontic faliure (27%) and dental carries (26 %). The results are consistent with those of earlier studies, according to which endodontic failure is a substantial factor in the need to extract permanent teeth. According to research by Italian researchers Angelillo et al. endodontic faliure and dental cavities account for approximately two thirds of cases when permanent teeth are extracted(Angelillo et al., 1996). Mhahjan et al. reported similar outcomes (Wininger et al., 2020). Periodontal disease and molar incisor Hypomineralization were additional reasons for extraction in the current study, which is also consistent with earlier research (Albadri et al., 2007)(Zafar et al., 2019). 18-29 years of patients have highest extraction frequency due to carries which means this age group has bad oral hygiene and consuming more sugary foods and drinks. Almost both genders have comparable number of extractions. To ensure a positive clinical out come and prevent complications, much careis used to choose the precise and ideal timing for initial molar extraction. In order for the second permanent molar to fill the space left by the extracted first permanent molar, Afnanetal. demonstrated that the optimal time to extract the first permanent molar is when it is at the bifurcation stage (age limit 8 to 10 years) (Shareef et

al., 2020). According to a study from Switzerland, the best time to extract the first permanent molar is between the ages of8.5and10 (Eichenberger et al., 2015). In contrast to previous research, one investigation revealed that there is little or no support for the assumption that the first permanent molar should be extracted at a particular time.(Wu et al., 2017).

CONCLUSION

Study's findings suggest that carries and periodontal disease are the main causes of the high rate of extraction of the first permanent molar. Patients between the ages of 18 and 29 make up the majority of cases, and the gender distribution is almost equal. Periododontists, orthodontists, and maxillofacial surgeons should work together to plan the extraction of first molars, if necessary. Planning the extraction of the first permanent molar requires consideration of many intra maxillary and intermaxillary variables, as well as the idea of balancing and compensating extraction (in class 1 relationship). To minimize negative consequences and create the most functionally acceptable occlusion, it is advised to extract the first permanent molar prior to the eruption of the second permanent molar.

REFRENCES

Zafar, R., Bukhari, J. H., Maryam, Z., Khan, M. A., Rehman, S., & Khalid, B. (2022). Frequency and causes of extraction of first permanent molar tooth in patients presented to a teaching hospital, Multan. The Professional Medical Journal, 29(08), 1132-1136.

Hatami, A., & Dreyer, C. (2019). The extraction of first, second or third permanent molar teeth and its effect on the dentofacial complex. Australian dental journal, 64(4), 302-311.

Saber, A. M., Altoukhi, D. H., Horaib, M. F., El-Housseiny, A. A., Alamoudi, N. M., & Sabbagh, H. J. (2018). Consequences of early extraction of compromised first permanent molar: a systematic review. BMC oral health, 18, 1-15.

Brusevold, I. J., Kleivene, K., Grimsøen, B., & Skaare, A. B. (2022). Extraction of first permanent molars severely affected by molar incisor hypomineralisation: a retrospective audit. European Archives of Paediatric Dentistry, 23(1), 89-95.

Almahdi, H. M., Alabdrabulridha, Z., AlAbbas, J., Saad, A. A., Alarka, I., Alghatm, S., & Alqasem, H. (2023). Permanent first mandibular molar: loss prevalence and pattern

Shareef, R. A., Chaturvedi, S., Suleman, G., Elmahdi, A. E., & Elagib, M. F. A. (2020). Analysis of tooth extraction causes and patterns. Open Access Macedonian Journal of Medical Sciences, 8(D), 36-41.

RUKH, S. L., SHAH, S. N., & GUL, R. (2017). CAUSES AND PATTERN OF PERMANENT TOOTH EXTRACTION WITH FREQUENCY AND TYPE OF REPLACEMENT. Pakistan Oral & Dental Journal, 37(1).

Sahibzada, H. A. (2016). Pattern and causes of tooth extraction in patients reporting to a teaching dental hospital. Journal of Islamabad Medical & Dental College, 5(4), 172-176.

Shareef, R. A., Chaturvedi, S., Suleman, G., Elmahdi, A. E., & Elagib, M. F. A. (2020). Analysis of tooth extraction causes and patterns. Open Access Macedonian Journal of Medical Sciences, 8(D), 36-41.

Sonpal, P. M., Mundada, B. P., Bhola, N. D., Kamble, R., & Mathew, J. (2022). Impacted mandibular first molar: a rare riddle. Cureus, 14(11), e31680.

Suzuki, S., Sugihara, N., Kamijo, H., Morita, M., Kawato, T., Tsuneishi, M., Kobayashi, K., Hasuike, Y., & Sato, T. (2022). Reasons for tooth extractions in Japan: the second nationwide survey. International dental journal, 72(3), 366-372.

Wininger, F. A., Zeng, R., Johnson, G., Katz, M., Johson, G., Bush, W., Jarboe, J., & Coates, J. (2020). Case report: Case report. Can Fam Physician, 47(10), 788-789.

Wu, M., Chen, L., Bawole, E., Anthonappa, R., & King, N. (2017). Is there sufficient evidence to support an optimum time for the extraction of first permanent molars? European Archives of Paediatric Dentistry, 18, 155-161.

Zadik, Y., Sandler, V., Bechor, R., & Salehrabi, R. (2008). Analysis of factors related to extraction of endodontically treated teeth. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology, 106(5), e31-e35.

Zafar, K. J., Iftikhar, B., Ghaffar, K., Khurram, M., Hassan, F., & Javed, M. (2019). Extraction of permanent teeth: etiology and pattern at a tertiary care hospital. Pakistan Oral &