The Research of Medical Science Review
ISSN: 3007-1208 & 3007-1216 Volume 4, Issue 3, 2026

CAUSES OF REMOVAL OF IMPACTED MANDIBULAR THIRD MOLAR IN PATIENTS VISITING KHYBER COLLEGE OF DENTISTRY (KCD), PESHAWAR

Rafiullah Khan[1], Muhammad Saif Ullah[2], Salman Butt[3], Naseem Ullah Khan[4] Ayesha Khan[5], Muhammad Ateeq[*6]

[1,2,3,5,*6]*Sarhad Institute of Allied Health Sciences, Sarhad University of Science and Information Technology, Peshawar*
[4]*Institute of physical Medicine and Rehabilitation , KMU*

[1]rafikhanmp140@gmail.com, [2]saifsardar1011@gmail.com, [3]salmansn1000@gmail.com
[4]naseemullah.ipmr@kmu.edu.pk, [5]ayesha.siahs@suit.edu.pk, [*5]ateeq.biochem@suit.edu.pk

DOI: https://doi.org/10.5281/zenodo.19107156

Keywords
Caries, Khyber College of Dentistry, Mandibualr Third Molars, Pericoronitis

Article History
Received: 19 January 2026
Accepted: 03 March 2026
Published: 18 March 2026

Corresponding Author: *
Muhammad Ateeq

Abstract

The mandibular third molar is the last tooth which appear in the oral cavity typically during the late teens or early twenties, after the jaws have finished their growth. Impacted teeth can lead to impaction of food, pericoronitis, caries, pain and development of pathology. Therefore, impacted third molar prophylactic removal is becoming a common practice nowadays. The current cross-sectional study aimed to identify the causes of removal of impacted mandibular third molar in patients visiting Khyber College of Dentistry (KCD), Peshawar. The data from 107 participants was collected through a structured questionnaire and clinical records of patients. The demographic information was recorded using a questionnaire. The data was summarized using descriptive statistics. A total of 107 patients diagnosed with third molar impactions were evaluated. The patients were categorized into 4 age groups. The age ranged from 15-40 years, with a mean age of 27.5 years. The standard deviation was 7.22 years. There were 58 (54.20 %) male patients and 49 (45.79 %) female patients. The male-to-female ratio of the cases was 1.18:1. The prevalence of mandibular tooth impaction was highest (63.55 %) in age group 18-25 years. The prevalence rate decreased with the increasing age, i-e., (36.44%) in age group 26-35 years. No cases were reported in below 18 years and above 36 years age group. The most common reasons and causes associated with the removal of impacted third molars was pericoronitis (41.12 %), followed by dental carries (30.84 %), impaction diagnosis (24.29 %) and orthodontic reasons (3.73 %) with or without trismus. The p value was ≈0.218. Several pre-operative complications were observed in both male and females patients with impacted mandibular third molars. The most common complication was swelling, observed in 55 (51.40 %) of patients. Trismus was the second most common pre-operative complication observed in 33 (30.84 %) of patients, followed by pus discharge 6 (5.60 %). Furthermore, p value was 0.33, which suggests that there is no statistically significant association between gender and pre-operative complications

INTRODUCTION

The word impaction is originated from the Latin word “impact” means structure or organ, which because of an abnormal mechanical condition has been prevented from acquiring its normal position. An impacted tooth is defined as a tooth that is prevented from erupting into its normal

position due to lack of space, malposition or other impediments. Later, impacted teeth was categorized as those which fail to erupt into the dental arch within the expected time (Ness *et al.*, 2022). Another author described impacted teeth as those prevented from eruption due to a physical barrier within the path of eruption (Keerthana *et al.*, 2018). The third molar is one of the frequently seen impacted tooth, with a higher prevalence rate in the lower jaw as compared to the upper jaw (Chen *et al.*, 2021).

The third molars impaction is observed in 73 % of young adults in Europe, according to Elsey and Rock (Dar *et al.*, 2019). Generally, third molars erupt between the ages of 17 and 21 years, but eruption times can vary with race (Vandana *et al.*, 2024). For example, mandibular third molars may erupt as early as 15 years of age in Nigerians (Adeola *et al.*, 2023). The average age for eruption also differs between males and females, with males erupting approximately 3-6 months ahead of females (Martins *et al.*, 2024).

The incidence of mandibular third molar impaction is higher in females, according to most authors (Rauf *et al.*, 2019). The eruption and continuous positional changes of third molars can be related to factors such as diet, genetic background and masticatory apparatus use (Lease. 2021). Impaction of mandibular third molars is a common condition that can lead to difficulties in extraction and risk of complications, including iatrogenic trigeminal nerve injury (Putrino *et al.*, 2025).

Several theories have been proposed owing to the high incidence of mandibular third molar impaction (Barone *et al.*, 2023). One of the most popular theory is inadequate development of the retromolar space (Ibisoglu & Ozge, 2025). The growth of mandibular ramus is associated with the deposition at its posterior surface while resorption at its anterior surface. However, in case of an imbalance of this progression, the mandibular third molars do not get adequate space to erupt (Shi *et al.*, 2024). The eruption of mandibular third molar also depends on their favorable path of eruption (De Sousa *et al.*, 2021). For instance, if the tooth bud is angulated medially during the early root development and calcification, the eruption path will be unfavorable. However, the impaction of mandibular third molars may develop due to a decrease or increase in mandible angulation and plane. Some studies have found a relation between impaction and root angulation, with angulated roots being more common in impacted mandibular third molars (Prasanna *et al.*, 2022). Other notable causes of the third molar impaction include genetic factors, malposition of the tooth germ, lack of adequate eruption force and the theory of phylogenetic regression of the jaw size (Vivigdha *et al.*, 2024).

A new classification system for mandibular third molar impaction and extraction difficulty is also proposed based on anatomical and radiologic findings (Barone *et al.*, 2024). The debate surrounding the surgical extraction of symptom-free or pathology-free impacted third molars has been ongoing, with some advocating for removal as a preventive measure (Toedtling *et al.*, 2023). Recent evidence suggests that impacted third molars can lead to periodontal breakdown or other dental morbidities on adjacent second molars, and the prevalence increases with age (Kindler *et al.*, 2018). The American Association of Oral and Maxillofacial Surgeons (AAOMS) recommends surgically extracting third molars associated with disease or at higher risk of developing disease (Akkitap & Gumru, 2021). Weighing the risks and costs associated with impacted third molar surgery is crucial for both patients and clinicians (Su *et al.*, 2023).

Surgical removal of impacted mandibular third molars can lead to postoperative complications such as pain, swelling, and trismus, which are usually transient and resolve spontaneously (Egbor & Adetunji, 2021). However, some complications can be more severe and require additional management. These include prolonged temporomandibular joint symptoms and dry socket, a delayed healing complication characterized by bad odor, dull throbbing pain, and referred pain (Obisesan *et al.*, 2022).

METHODOLOGY

Study Design & Area

This study was a cross sectional study performed in the Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry (KCD), Peshawar.

Sample Size

The following formula was selected to calculate the sample size.

$n = Z^2 \times p(q)/d^2$

Where, n represents the sample size.

-Z represents the Z-score corresponding to the 95% confidence level

-p represents the estimated proportion of the population that possess the trait of interest (0.347).

-q = 1 - p (1 - 0.347 = 0.653)

-d is the error (0.05 or 5 %)

Putting the values in the above formula:

$n = (1.96^2 \times 0.347 \times 0.653)/0.05^2$

$n = 348.2 \approx 348$

Inclusion Criteria

The study included patients of both gender and aged 15 years and above, presenting with the impacted mandibular third molars.

Exclusion Criteria

Patients with the incomplete clinical history, including missing radiographs, pregnant females and patients with any systemic conditions which contraindicated the surgical removal of teeth were excluded from the study.

Data Collection

The data from all the participants were collected through a structured questionnaire from clinical records of patients. The demographic information including gender, age, reasons for extraction of mandibular third molar (*i-e.*, infection, cyst/tumors, pericoronitis, pain, orthodontic reasons, root resorption and carries in third molar was recorded using a questionnaire.

Data Analysis

The data was summarized using descriptive statistics. Mean and standard deviation for all the continuous variables was calculated. Furthermore, *p*-value was also calculated. A *p*-value of ≤ 0.05 was considered significant.

RESULTS

Demographic characteristics of patients

Age-wise distributution of patients

Among 348 patients, a total of 107 patients diagnosed with third molar impactions were evaluated from January, 2025 to June, 2025. The patients were categorized into 4 age groups. The age ranged from 15-40 years, with a mean age of 27.5 years. The standard deviation was 7.22 years. Table 4.1. demonstrates overview of the study population.

Table. 1. Overview of the study population

S. No.	Parameter	Description
1.	Total patients	348
2.	Patients diagnosed with third molar impactions	107
3.	Age range	15-40 years
4.	Mean age	27.5 years
5.	Standard deviation	7.22 years

Gender-wise distribitution of patients

Among 107 patients, there were 58 (54.20 %) male patients and 49 (45.79 %) female patients. The male-to-female ratio of the cases was 1.18:1. The prevalence of mandibular tooth impaction was highest (63.55 %) in age group 18-25 years. The prevalence rate decreased with the increasing age, *i-e.*, (36.44%) in age group 26-35 years. No cases were reported in below 18 years and above 36 years age group. Figure 4.1. shows demographic characteristics of patients.

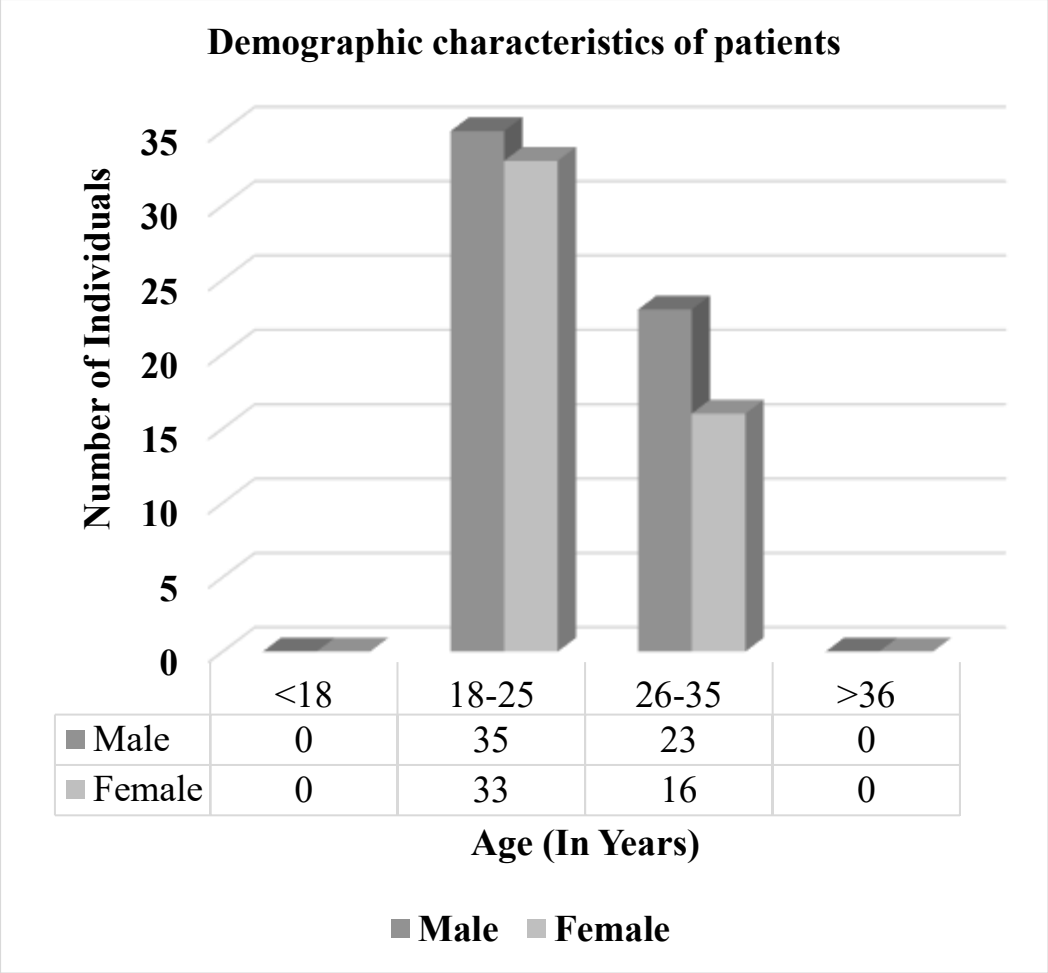

Fig. 1. Patients with impacted third molars

Causes of removal of impacted third molars

The most common reasons and causes associated with the removal of impacted third molars was pericoronitis (41.12 %), followed by dental carries (30.84 %), impaction diagnosis (24.29 %) and orthodontic reasons (3.73 %) with or without trismus. The p value was ≈0.218. Figure 4.2. shows several pathologies associated with impacted third molars.

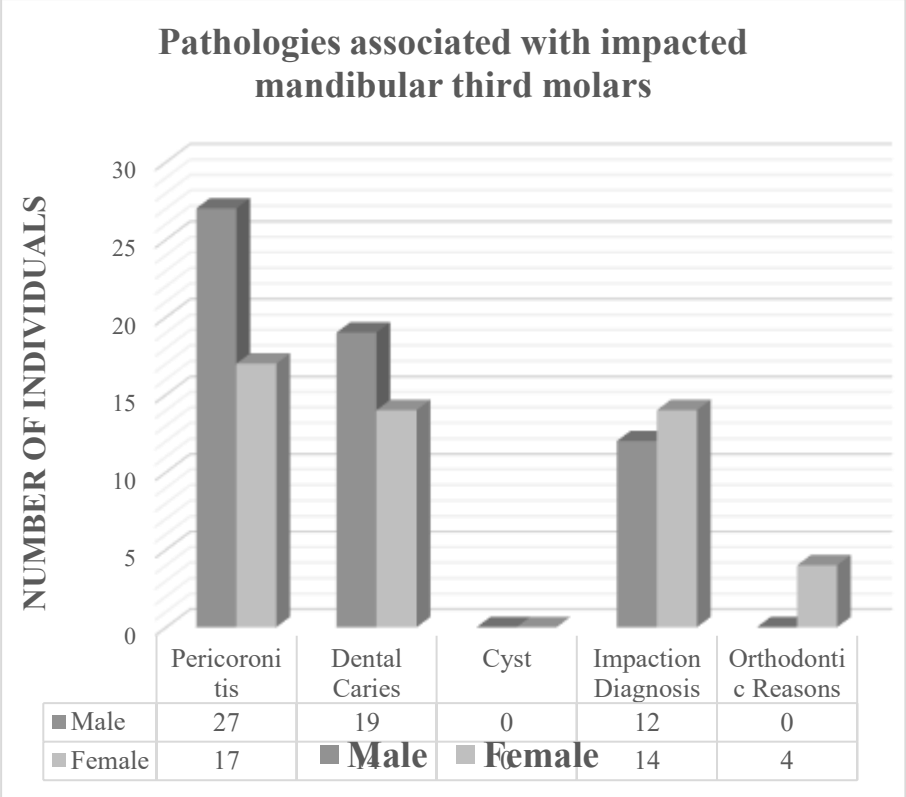

Fig. 2. Pathologies associated with impacted mandibular third molars

Pre-operative complications

Several pre-operative complications including swelling, trismus and pus discharge was observed in both male and females patients with impacted mandibular third molars. The most common complication was swelling, observed in 55 (51.40 %) of patients. Trismus was the second most common pre-operative complication observed in 33 (30.84 %) of patients, followed by pus discharge 6 (5.60 %). Furthermore, *p* value was 0.33, which suggests that there is no statistically significant association between gender and pre-operative complications. Several pre-operative complications are shown in Figure 4.3.

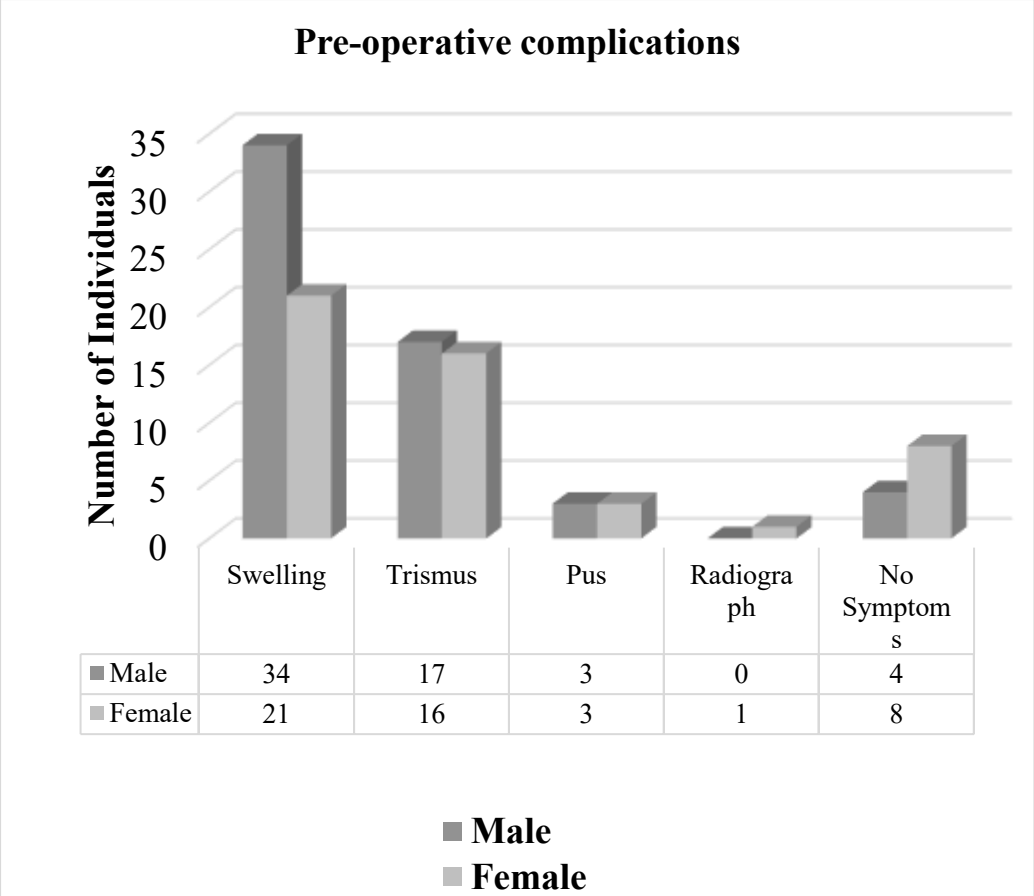

Fig. 3. Several pre-operative complications associated with impacted tooth

DISCUSSION

The mandibular third molar is the last tooth that appear in the oral cavity usually during the late teens or early twenties, after the jaws have finished their growth. All the wisdom teeth do not need removal or extraction. The decision to remove wisdom teeth depends on oral health of individuals, the position of the teeth and its potential for complications. Since, mandibular third molar extraction is one of the routine dental procedure, there are several potential complications and risks that can arise and yield a surgical challenge. These complications includes infection, dry socket, nerve injury, mandibular jaw fracture, nerve injury, displacement of root tips to sub-lingual spaces and perforations of the lingual cortex (Khan *et al.*, 2023). Therefore, the current cross-sectional study aimed to identify the causes of removal of impacted mandibular third molar in patients visiting Khyber College of Dentistry (KCD), Peshawar.

In the current study, among 107 patients, there were 58 (54.20 %) male patients and 49 (45.79 %) female patients. The male-to-female ratio of the cases was 1.18:1. Similarly, Zaman *et al.* (2021) reported bilateral impaction in 671 (50.2 %) male and 666 (49.8 %) female patients. Similarly, Shaari *et al.* (2023) reported in their study that the prevalenc of impacted third molar was 34.71 %. Furthermore, the male to female ratio in their study was 0.83:1. These results were almost similar to the current findngs. In contrast, a study conducted by Maqbool *et al.* (2024) showed that females were more affected than males. Lamichhane *et al.* (2023) reported 59.66 % and 40.33 % prevalence of mandibular tooth impaction in female and male patients, respectively. Gebeyehu *et al.* (2024) reported highest mandibular tooth impaction in female patients.

In the current study the prevalence of mandibular tooth impaction was highest (63.55 %) in age group 18-25 years. The prevalence rate decreased with the increasing age, *i-e.*, (36.44%) in age group 26-35 years. No cases were reported in below 18 years and above 36 years age group. Similarly, our study reported highest prevalence (33.57 %) in age

group 20-30 years, followed by 24.15 % in age group 31-40 years. The current results were also in agreement with study conducted by Kumar *et al.* (2017). Haque *et al.* (2021) & Tenrilili *et al.* (2023) also reported highest mandibular tooth impaction in age group 20-30 years.

In the current study, the most common reasons and causes associated with the removal of impacted third molars were pericoronitis (41.12 %), followed by dental carries (30.84 %), impaction diagnosis (24.29 %) and orthodontic reasons (3.73 %). Similarly, pericoronitis was observed in 178 (17 %) of patients, followed by caries (7 %) in a study conducted by Genc *et al.* (2022). Starch-Jensen *et al.* (2023) observed pericoronitis in 20 % of patients. Similarly, pericoronitis was the most common cause of removal of impacted mandibular third molars, accounting for almost 35.1 % of cases, followed by dental caries (25.95 %) in a study conducted by Ishfaq *et al.* (2024). Saeed *et al.* (2024) reported that dental caries was the most common reason for extraction, accounting for 64 % of cases. Whereas, pericoronitis accounted for 3.5 % of cases.

Several pre-operative complications including swelling, trismus and pus discharge was observed in both male and females patients with impacted mandibular third molars. The most common complication was swelling, observed in 55 (51.40 %) of patients. Trismus was the second most common pre-operative complication observed in 33 (30.84 %) of patients, followed by pus discharge 6 (5.60 %). Similarly, Daware *et al.* (2021) reported mild pain, trismus and swelling in majority of patients with impacted mandibular third molars. Similarly, Shivam *et al.* (2024) reported pain and pus discharge in patients. Ali *et al.* (2022) observed swelling, trismus and purulent discharge in patients.

CONCLUSION

In the current study, among 107 patients, there were 58 (54.20 %) male patients and 49 (45.79 %) female patients. The prevalence of mandibular tooth impaction was highest (63.55 %) in age group 18-25 years. The prevalence rate decreased with the increasing age, *i-e.*, (36.44%) in age group 26-35 years. Furthermore, periocoronitis was the most common cause associated with the removal of impacted third molars. Dental carries and impaction diagnosis were also identified as common causes of extraction. Swelling was the most common complication observed in patients with impacted mandibular third molars.

REFERENCES

Adeola, O., Fatusi, O., Njokanma, A., & Adejobi, A. (2023). Impacted Mandibular Third Molar Prevalence and Patterns in a Nigerian Teaching Hospital: A 5-Year Retrospective Study. *Journal of BioMedical Science*, *3*(4), 507-515.

Akkitap, M. P., & Gümrü, B. (2021). Impacted third molar: to extract or not to extract, that is the question. *Dental and Medical Journal-Review*, *3*(2), 66-82.

Ali, D., Al-Asfour, A., & Kamal, M. (2022). Complications following surgical removal of third molar teeth: a retrospective study of 932 extracted third molars at kuwait university dental center. *International Journal of Clinical Dentistry*, *15*(1).

Barone, S., Antonelli, A., Bocchino, T., Cevidanes, L., Michelotti, A., & Giudice, A. (2023). Managing mandibular second molar impaction: a systematic review and meta-analysis. *Journal of Oral and Maxillofacial Surgery*, *81*(11), 1403-1421.

Barone, S., Cevidanes, L., Bocchino, T., Michelotti, A., Borelli, M., & Giudice, A. (2024). Mandibular second molar impaction: introducing a novel and validated 3D classification system. *BioMedical Central Oral Health*, *24*(1), 1-12.

Chen, Y. W., Chi, L. Y., & Lee, O. K. S. (2021). Revisit incidence of complications after impacted mandibular third molar extraction: A nationwide population-based cohort study. *PloS one*, *16*(2), 1-25.

Dar, M. M., Bashir, S., & Jaan, I. (2019). Assessment of various indicators for removal of impacted mandibular third molars-An observational study. *Journal of Advanced Medical and Dental Sciences Research*, *7*(7), 22-24.

Daware, S. N., Balakrishna, R., Deogade, S. C., Ingole, Y. S., Patil, S. M., & Naitam, D. M. (2021). Assessment of postoperative discomfort and nerve injuries after surgical removal of mandibular third molar: A prospective study. *Journal of family medicine and primary care*, *10*(4), 1712-1717.

De Sousa, A. S., Neto, J. V., & Normando, D. (2021). The prediction of impacted versus spontaneously erupted mandibular third molars. *Progress in Orthodontics*, *22*(1), 1-29.

Egbor, P. E., & Adetunji, S. G. (2021). Mandibular third molar surgery: A review of common and uncommon complications. *Ibom Medical Journal*, *14*(2), 130-138.

Gebeyehu, T., & Abaynew, Y. (2024). Prevalence and patterns of third molar impaction among Ethiopians in Addis Ababa: A retrospective pilot study. *Scientific Reports*, *14*(1), 1-12.

Genc, B. G. C., Orhan, K., & Hıncal, E. (2022). Maxillary and mandibular third molars impaction with associated pathologies in a North Cyprus population: a retrospective Study. *Applied Sciences*, *12*(11), 1-7.

Haque B, Bhandari K, Karna D. (2021). Pattern of mandibular third molar impaction in different age groups and indications for removal. *Scientific Reports*, 21(32):34–9.

Hasan, K. M., Sobhana, C. R., Rawat, S. K., Singh, D., Mongia, P., & Fakhruddin, A. (2021). Third molar impaction in different facial types and mandibular length: a cross-sectional study. *National Journal of Maxillofacial Surgery*, *12*(1), 83-87.

Ibisoglu, G. N., & Uslu-Akcam, O. (2025). Is there a relationship between mandibular third molar impaction and mandibular morphology. *BioMedical Central Oral Health*, *25*(1), 1-12.

Ishfaq, M., Ashraf, N., Khan, B. K., Zaman, T., Ahmad, W., & Jehan, M. (2024). Causes of removal of impacted mandibular third molar in patients visiting Peshawar Dental College and Hospital, Peshawar. *Pakistan Oral & Dental Journal*, *44*(3), 15-19.

Keerthana, R., Kumar, B. P., Venkatesh, V., Rao, J. B., & Praveen, P. (2018). Prevalence of Impacted Mandibular Third Molars and its Influence on Second Molars: A Radiographic Study in Three Different Age Groups. *Indian Journal of Dental Advancements*, *10*(2), 81-86.

Khan, M. I., Durrani, Z., Ullah, U., Khan, A., Hameed, M. F., & Hussain, S. (2023). Prevalence of Pre-Existing Lingual Cortex Perforation Prior to Extraction of Mandibular Third Molars. *Global Pharmaceutical Sciences Review*, *8*(2), 50-56.

Kiencało, A., Jamka-Kasprzyk, M., Panas, M., & Wyszyńska-Pawelec, G. (2021). Analysis of complications after the removal of 339 third molars. *Dental Medical Problems*. 2021; *58*(1):75–80.

Kindler, S., Holtfreter, B., Koppe, T., Mksoud, M., Lucas, C., Seebauer, C., & Ittermann, T. (2018). Third molars and periodontal damage of second molars in the general population. *Journal of clinical periodontology*, *45*(11), 1365-1374.

Kim, J. Y., Han, M. D., Lee, H., Ko, J. H., Park, Y. L., & Huh, J. K. (2024). Are There Differences in the Causes and Complications of Mandibular Third Molar Extraction in Older Patients Compared to Younger Patients?. *Journal of Oral and Maxillofacial Surgery*, *82*(11), 1416-1424.

Kumar, V. R., Yadav, P., Kahsu, E., Girkar, F., & Chakraborty, R. (2017). Prevalence and pattern of mandibular third molar impaction in Eritrean population: a retrospective study. *Journal of Contemporary Dental Practices*, *18*(2), 1-6.

Kumar, D., Sharma, M., Vijaya Lakshmi, G., Subedar, R. S., Nithin, V. M., & Patil, V. (2022). Pathologies associated with second mandibular molar due to various types of impacted third molar: A comparative clinical study. *Journal of maxillofacial and oral surgery*, 1-14.

Kawashima, K., Ogawa, M., Tachikake, M., Shoji, Y., Akitomo, T., & Nomura, R. (2025). Dentoalveolar Abscess Caused by Pericoronitis of an Erupting First Molar. *Diagnostics*, *15*(12), 1-16.

Lamichhane, N. S., Sigdel, B., Lamichhane, S., Tripathi, R., Koirala, U., & Bajgai, D. P. (2023). Mandibular third molar impaction among patients visiting outpatient Dental Department of a tertiary care centre. *JNMA: Journal of the Nepal Medical Association*, *61*(266), 1-7.

Lease, L. R. (2021). Correlations between dental wear and oral cavity characteristics: Mandibular torus, palatine torus, and oral exostoses. *American Journal of Human Biology*, *33*(2), 1-6.

Martins, R. F. M., Dos Santos, A. M., Saraiva, M. D. C. P., Ribeiro, C. C. C., Alves, C. M. C., da Silva, A. A. M., & Thomaz, E. B. A. F. (2024). Prediction of deciduous teeth eruption in Brazilian children: A cross-sectional study nested in a prospective birth cohort (BRISA). *BioMedical Central Oral Health*, *24*(1), 1-11.

Maqbool, S., Khan, N. S., Abbas, I., & Khan, A. (2024). Frequency of inferior alveolar nerve injury during third Molar extraction. *Age (years)*, *28*(104), 63-8.

Ness, G. M., Blakey, G. H., & Hechler, B. L. (2022). Impacted teeth. *Peterson's principles of oral and maxillofacial surgery*, *9*(22), 131-169.

Obisesan, O., Bryant, C., & Shah, A. (2022). When dental extractions go wrong: An overview of common complications and management. *Primary Dental Journal*, *11*(3), 88-97.

Passi, D., Singh, G., Dutta, S., Srivastava, D., Chandra, L., Mishra, S., & Dubey, M. (2019). Study of pattern and prevalence of mandibular impacted third molar among Delhi-National Capital Region population with newer proposed classification of mandibular impacted third molar: A retrospective study. *National journal of maxillofacial surgery*, *10*(1), 59-67.

Prasanna Kumar, D., Sharma, M., Vijaya Lakshmi, G., Subedar, R. S., Nithin, V. M., & Patil, V. (2022). Pathologies associated with second mandibular molar due to various types of impacted third molar: A comparative clinical study. *Journal of maxillofacial and oral surgery*, *21*(4), 1126-1139.

Putrino, A., Zaami, S., Cassetta, M., Altieri, F., De Paola, L., & Marinelli, S. (2025). Inferior Alveolar Nerve Impairment Following Third-Molar Extraction: Management of Complications and Medicolegal Considerations. *Journal of Clinical Medicine*, *14*(7), 1-9.

Pinto, A. C., Francisco, H., Marques, D., Martins, J. N., & Caramês, J. (2024). Worldwide Prevalence and Demographic Predictors of Impacted Third Molars—Systematic Review with Meta-Analysis. *Journal of Clinical Medicine*, *13*(24), 1-7.

Rauf, S., Ali, W., Tariq, Q., Chaudhry, R., Kazmi, S. S., & Imtiaz, M. (2019). Pattern of mandibular third molar impaction: a radiographic study. *Pakistan Oral & Dental Journal*, *39*(3), 238-242.

Saeed, T., Liaquat, A., Hussain, H., Naqvi, N., Anwar, M. A., Amin, S., & Baig, M. A. (2024). Determination of Location of Mandibular Foramen Across Age Groups and Genders Using Cone Beam Computed Tomography (CBCT): A Radio-Anatomical Study. *Annals of King Edward Medical University*, *30*(4), 389-395.

Starch-Jensen, T., Gacic, B., Konstantinovic, V. S., Ontañón, A. V., Sapundzhiev, A., Pavlov, N., & Boffano, P. (2023). Patient's perception of recovery following surgical removal of mandibular third molars. A prospective European multi-center study. *Journal of Cranio-Maxillofacial Surgery*, *51*(10), 635-643.

Shaari, R. B., Nawi, M. A. A., Khaleel, A. K., & AlRifai, A. S. (2023). Prevalence and pattern of third molars impaction: A retrospective radiographic study. *Journal of advanced pharmaceutical technology & research*, *14*(1), 46-50.

Shi, H., Kang, F. F., & Liu, Q. (2024). Stress induced on permanent mandible first molar and space maintainer under normal masticatory forces: A finite element study. *PeerJ*, *12*, 1-17.

Skitioui, M., Jaoui, D., Haj Khalaf, L., & Touré, B. (2023). Mandibular second molars and their pathologies related to the position of the mandibular third molar: a radiographic study. *Clinical, Cosmetic and Investigational Dentistry*, 15(23), 215-223.

Shivam, A. K., Singh, J., Ahuja, P., & Shivam, A. K. (2024). Comprehensive Questionnaire Based Assessment of Various Clinical Parameters Pertaining To Mandibular Impacted Third Molar Surgery: An Original Research Study. *International Journal of Life Sciences, Biotechnology and Pharmaceutical Research.*, 13(4); 1-5.

Su, N., Harroui, S., Rozema, F., Listl, S., de Lange, J., & Van Der Heijden, G. J. (2023). What do we know about uncommon complications associated with third molar extractions? A scoping review of case reports and case series. *Journal of the Korean Association of Oral and Maxillofacial Surgeons*, *49*(1), 2-12.

Tenrilili, A. N. A., Yunus, B., & Rahman, F. U. A. (2023). Third molar impaction prevalence and pattern: a panoramic radiography investigation. *Jurnal Radiologi Dentomaksilofasial Indonesia (JRDI)*, *7*(1), 9-14.

Toedtling, V., Forouzanfar, T., & Brand, H. S. (2023). Historical aspects about third molar removal versus retention and distal surface caries in the second mandibular molar adjacent to impacted third molars. *British dental journal*, *234*(4), 268-273.

Vandana, S., Muthu, M. S., Akila, G., Anusha, M., Kandaswamy, D., & Aswath Narayanan, M. B. (2024). Global variations in eruption chronology of permanent teeth: A systematic review and meta-analysis. *American Journal of Human Biology*, *36*(8), 1-14.

Vivigdha, V., Kumar, S., Murugan, S., & Meenakshi, S. (2022). Effectiveness Of Transcutaneous Electrical Nerve Stimulation (Tens) And Low-Level Laser Therapy (Llrt) On Post Operative Sequelae in Lower Third Molar Surgery-A Literature Review. *NeuroQuantology*, *20*(12), 1642-1649.

Zaman, M. U., Almutairi, N. S., Abdulrahman Alnashwan, M., Albogami, S. M., Alkhammash, N. M., & Alam, M. K. (2021). Pattern of mandibular third molar impaction in nonsyndromic 17760 patients: A retrospective study among Saudi population in Central Region, Saudi Arabia. *BioMed Research International*, *2021*(1), 1-18.