

**Prevalence of Wisdom Teeth and its associated Pain among Saudi Population, KSA: A Cross-sectional Study**

<sup>1</sup>Dr. Mervat Said Bamani, <sup>2</sup>Dr. Manal Abdulaziz Murad, <sup>3</sup>Dr. Hoda Jehad Abousada, <sup>4</sup>Dr. Haitham Faisal Algharbi, <sup>4</sup>Dr. Bander Khaled Almotairi, <sup>5</sup>Dr. Bilqis Abdu Shararah, <sup>5</sup>Dr. Khadijah Mousa Hawsah, <sup>5</sup>Dr. Khaled Jamman S Alzahrani, <sup>5</sup>Dr. Khalid Salem Alharbi, <sup>5</sup>Dr. Mohammed Abdulsalam Alkhayat, <sup>5</sup>Dr. Abdullah Saleh Alannaz, <sup>5</sup>Dr. Abdulrahman Ayidh Alharbi, <sup>5</sup>Dr. Najd Mohammed Alrasheed, <sup>5</sup>Dr. Aziz Mohammed Aloufi, <sup>6</sup>Dr. Majd Abbass Eskndrani

<sup>1</sup> Consultant in periodontology, MSc in periodontology, Saudi board in periodontology, MOH, Jeddah, KSA.

<sup>2</sup> Assistant professor & consultant Family medicine, KAU, Jeddah, KSA.

<sup>3</sup> Obstetrics & Gynaecology Physician, KAMC, Jeddah, KSA

<sup>4</sup> Dentist Resident, KSA.

<sup>5</sup> General Dentist, KSA.

<sup>6</sup> Six-year dental, KSA.

**Corresponding Author:** Dr. Hoda Jehad Abousada, Obstetrics & Gynaecology Physician, KAMC, Jeddah, KSA

**Citation of this Article:** Dr. Mervat Said Bamani, Dr. Manal Abdulaziz Murad, Dr. Hoda Jehad Abousada, Dr. Haitham Faisal Algharbi, Dr. Bander Khaled Almotairi, Dr. Bilqis Abdu Shararah, Dr. Khadijah Mousa Hawsah, Dr. Khaled Jamman S Alzahrani, Dr. Khalid Salem Alharbi, Dr. Mohammed Abdulsalam Alkhayat, Dr. Abdullah Saleh Alannaz, Dr. Abdulrahman Ayidh Alharbi, Dr. Najd Mohammed Alrasheed, Dr. Aziz Mohammed Aloufi, Dr. Majd Abbass Eskndrani, "Prevalence of Wisdom Teeth and its associated Pain among Saudi Population, KSA: A Cross-sectional Study", IJDSIR- December - 2021, Vol. – 4, Issue - 6, P. No. 130 – 137.

**Copyright:** © 2021, Dr. Hoda Jehad Abousada, et al. This is an open access journal and article distributed under the terms of the creative commons attribution noncommercial License. Which allows others to remix, tweak, and build upon the work non commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

**Abstract**

**Background:** Wisdom teeth are at the very back of the mouth, one at the end of each row of teeth. Often, they are only fully developed between the ages of 18 and 24 and only then break through - if at all. Many see them as troublemakers in their mouths because they often do not fit into the row of teeth and can cause discomfort. Wisdom teeth are considered a holdover from a bygone era when people still had larger teeth. Today most people's jaws are too small for these "extra teeth". As a

result, they were almost always removed for a while. However, since not every wisdom tooth causes problems and an intervention can be associated with complications, dentists are now a little more cautious.

**Methods:** This was an analytical cross-sectional study to spot light on the prevalence of wisdom teeth and its associated pain among Saudi population. The study was carried out at universities, hospitals and malls in KSA. Data were collected from patients and general population during a period from June to November 2021.

**Results:** There were 351 females who were the majority of the study (57.4%) and the rest of participants were males (n= 261). Wisdom teeth appeared among 281 participants (45.9%), but the rest haven't had one yet. Wisdom teeth appeared during the age of 20-25 years. The most frequent type was the partial wisdom teeth (n= 104, 17%). The most frequent problem encountered during the emergence of wisdom teeth is the irritation accompanied by pain due to the appearance of the wisdom tooth, (n= 95, 15.5%).

**Conclusion:** Wisdom teeth appeared to be present in about the half of the selected sample of Saudi population. It was reported that there were many problems encountered during the emergence of wisdom teeth; like: irritation accompanied by pain due to the appearance of the wisdom tooth, severe pain or stiffness in the jaw in the area around the emergence of wisdom teeth, swelling of the area due to the growth of gum tissue around the tooth, tooth crowding because there is not enough space for wisdom teeth to appear, and tooth decay and gingivitis if the wisdom tooth appears behind the mouth.

Keywords: Extra Teeth, Gum Tissue, Cyst Formation

## **Introduction**

There are usually four wisdom teeth in each jaw. However, they do not always breakthrough into the oral cavity: In around 80 out of 100 young adults, at least one wisdom tooth remains in the jaw. Sometimes a wisdom tooth breaks through only partially: its crown is then still somewhat covered by gums, or it does not penetrate as far into the oral cavity as other teeth (1).

Wisdom teeth that have not or only partially erupted often do not cause any problems. But it can also lead to pain, swelling, or inflammation of the gums. In addition, neighboring teeth can be damaged and tooth decay can be favored. When wisdom teeth erupt, it's similar:

sometimes they fit in at the end of the row of teeth without any problems (2). But they can also move other teeth, grow transversely and lead to inflammation or other complications.

If people are worried about their wisdom teeth, it is best to seek dental advice. The doctor will first ask about symptoms and examine the oral cavity and jaw. An x-ray is taken to see how the wisdom teeth are positioned. A thorough examination is intended to help assess whether the wisdom teeth are causing problems or will fit into the jaw normally (3).

If one or more wisdom teeth are causing complications, they usually need to be extracted. An outpatient maxillofacial surgery with local anesthesia is usually sufficient for this (4). In the past, symptom-free wisdom teeth were usually pulled. Removal is now usually only recommended if problems arise or are foreseeable.

## **Literature Review**

Wisdom teeth are the last teeth to come through in humans. They usually break through into the oral cavity at the age of 18-25 as the rear molars. The term comes from the "old" age when they break through. Normally every person has four wisdom teeth that were created before birth (5). However, some people do not have all four or no wisdom teeth at all.

The teeth do not necessarily have to be removed. But often there is no room in the jaw to get through. This is because our jaws are getting smaller and smaller as humans evolve. How many wisdom teeth you have and whether they have room to erupt can be determined by the dentist using an overview X-ray.

Wisdom teeth often not only have too little space, they are sometimes also on the side or at an angle and so cannot grow normally either. So, it can be that they press against the teeth that are already there and thus damage them. Wisdom teeth surgery may also be advisable for

orthodontic reasons if the newly erupting wisdom teeth jeopardize the success of the treatment (6). Often the wisdom teeth can only come through halfway and are still covered by some mucous membrane. There are many bacteria beneath this that cause permanent, subliminal inflammation. Not only is this stress for the immune system, it can also lead to acute inflammation, which is accompanied by severe pain and swelling. If there is such permanent inflammation, wisdom teeth should be removed. Wisdom teeth are difficult to brush even after they have come through fully. Since they are so far back in the mouth, they cannot be cleaned adequately with a toothbrush. Therefore, they are very often affected by severe tooth decay, which also speaks in favor of removal.

#### Benefits of Wisdom Tooth Removal VS Benefits of Preserving Wisdom Teeth

Since wisdom teeth can be the cause of complications, the benefits are in avoiding these potential complications. Removal of wisdom teeth may have the following advantages (7):

- Less bite disorder - The third molar can disrupt the bite and wear other teeth or cause discomfort when chewing and swallowing.
- Protection for other teeth - In principle, there is also the risk that a wisdom tooth can damage another molar, or the risk of infection in this area is increased.
- No crowding - the development of a wisdom tooth can also cause other teeth to press together, creating pressure that requires orthodontic treatment to straighten other teeth.
- Temporomandibular joint diseases - the emergence or unfavorable further development of temporomandibular joint diseases are repeatedly related to wisdom teeth.

- Less risk of cyst formation - There is also a risk that some sort of sac will develop in the jawbone around the wisdom tooth. This pouch can fill with fluid and form a cyst that can damage the jawbone, teeth, and nerves.
- Improving the risk of tooth decay - wisdom teeth can negatively affect the risk of tooth decay, as wisdom teeth appear to be at higher risk of tooth decay than other teeth. The reason for this could be that the wisdom teeth are more difficult to clean due to their position in the oral cavity and that food residues and bacteria are more easily trapped between the gums and a partially erupted tooth.

In the case of an acute disease of the wisdom tooth, in addition to treating the disease, the removal of the wisdom tooth is often an option. But not only in this specific case, but generally in each individual case, the question of why a wisdom tooth could be important should also be investigated when making a decision (8). Because if a wisdom tooth develops normally, is healthy and there is enough space in the jaw and thus stands or can stand well in the row of teeth, it should be preserved. Because wisdom teeth can also serve as a replacement for lost and damaged teeth. For example, a wisdom tooth can be used for an autograft. For example, a wisdom tooth can be transplanted to replace a missing five.

It should be remembered that a wisdom tooth extraction is a surgical procedure. Every operation is not only associated with inconvenience but also with risks for the patient. These risks include, for example, nerve damage such as paresthesia - dullness and tingling - in the lips and / or tongue or infections in the wound, for example (9).

Today there is no prescription for the preventive removal of wisdom teeth. This means that each patient must be assessed on a case-by-case basis as to what speaks for or

against the removal of a wisdom tooth (10). The dentist is the right contact here. As a patient, you should also have the feeling that sufficient time has been taken for a detailed discussion regarding the advantages and disadvantages to be weighed up as to whether a wisdom tooth should be extracted.

#### Kind of Pain Associated with Wisdom Teeth

If the wisdom teeth penetrate the visible row of teeth, it can be very painful. Most of the time, the pain can be felt in the back of the mouth. If you look in a mirror, you may even notice that your wisdom teeth have started to poke through your gums (11). The area may be painful, red, or sore. Basically, you can look out for the following signs or symptoms:

- Red or swollen gums
- Tender or bleeding gums
- Pain in the jaw
- Swelling around the jaw
- Bad breath (halitosis)
- An unpleasant taste in the mouth
- Difficulty opening the mouth

In any case, the signs or symptoms should be clarified. Wisdom teeth can damage other teeth or cause other problems in the mouth area.

#### Methods

**Study design:** This was an analytical cross-sectional study to spot light on the prevalence of wisdom teeth and its associated pain; among Saudi population.

**Study setting:** The study was carried out at universities, hospitals and malls in KSA. Data were collected from general population during a period from June to November 2021.

**Sampling and sample:** Participants were chosen via probability simple random sampling technique. Participants were selected from the general population.

The final number of sample size was 600 participants.

However, the study included 612 participants.

Inclusion criteria: General population.

**Exclusion criteria:** none.

#### Instruments

Data collection tool was self-designed and base on latest literature. It contained the following information: (1) Sociodemographic characteristics: age, gender. (2) Disease related information: prevalence, annoying pain, type of wisdom teeth and related health problems.

#### Statistical analysis

Data was entered and analyzed using SPSS version 23. Descriptive statistics were performed and categorical data was displayed as frequencies and population have wisdom teeth, were used to summarize continuous variables.

Univariate and multivariate analysis were performed to investigate association between age, gender and prevalence, statistical significance is set at a P value of 0.05 or less.

#### Permission and ethical considerations

Administrative approval will be sought from the unit of biomedical ethics research committee Ethical approval was sought from the ethical committee of the faculty of medicine, King Abdul-Aziz University. An informed consent was sought from the participants.

#### Results

The current study objective was to determine appearance age of wisdom teeth and accompanying pain and problems among population in the Kingdom of Saudi Arabia. The study included 612 participants. There were 351 females who were the majority of the study (57.4%) and the rest of participants were males (n= 261). Wisdom teeth appeared among 281 participants (45.9%), but the rest haven't had one yet. The age of appearance of the wisdom teeth varied among participants (figure 1).

Wisdom teeth appeared during the age of 20-25 years. The appearance age of wisdom teeth is demonstrated according to gender in table 1.

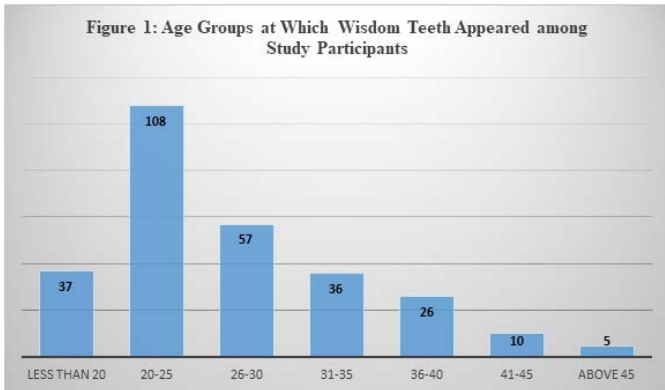


Table 1: Age group of wisdom teeth appearance distribution by gender of participants

Age group	Male	Female
Less than 20	16	21
20-25	38	70
26-30	27	30
31-35	24	12
36-40	19	7
41-45	8	2
More than 45	2	3

Type of wisdom teeth varied among study participants. Participants were asked to show their wisdom teeth according to figure 2.

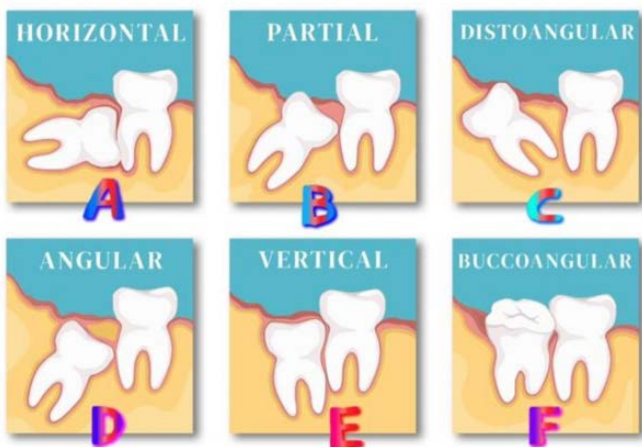
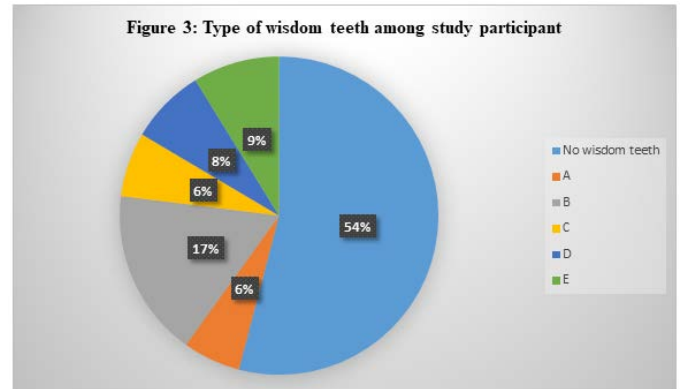


Figure 2: Types of wisdom teeth

The most frequent type was B (n= 104, 17%). The frequency of other types is presented in figure 3.



Study participants reported some sort of pain during the emergence of wisdom teeth. The problem reported by study participants is presented in table 2.

Problem	Frequency	Percent
Severe pain or stiffness in the jaw in the area around the emergence of wisdom teeth	54	8.8
Irritation accompanied by pain due to the appearance of the wisdom tooth	95	15.5
Swelling and swelling of the area due to the growth of gum tissue around the tooth	50	8.2
Tooth crowding because there is not enough space for wisdom teeth to appear.	32	5.2
Tooth decay and gingivitis if the wisdom tooth appears behind the mouth	23	3.8
Nothing	21	3.4
Other	6	1.0

Other participants complained from some sort of pain during the emergence of wisdom teeth. The pain reported by study participants is presented in table 3.

Pain	Frequency	Percent
Bleeding or tender gums	60	9.8
Swelling of the gums or the jaw	75	12.3
Jaw pain	62	10.1
An unpleasant taste in the mouth or foul mouth odor	47	7.7
Difficulty opening your mouth	37	6.0

### Discussion

In this study, we determined the mean chronological ages at which the different stages of tooth eruption were observed as described by Olze *et al.*(12) This method was preferred to the clinical eruption method because it identifies both missing and impacted teeth, and thus gives a better age estimate. It describes four distinct stages of tooth eruption that can easily be identified on the radiograph. The mean ages for the alveolar, gingival, and complete eruption stages can act as markers and provide useful information for forensic age estimation in an individual. This is one of the most commonly used techniques in studies concerning dental age estimations and has been used in diverse populations, around the world, including Germans (13) and South Africans (14). Wisdom teeth or third molars (M3s) are the last, most posteriorly placed permanent teeth to erupt. They usually erupt into the mouth between 17 and 25 years of age. They can, however, erupt many years later. Most adults have four M3s; however, 8% of the UK population have missing or no M3s. Mandibular M3s often get impacted in a partially erupted, non-functional position. Eighty per

cent of M3s require extraction before 70 years of age. National Institute for Health and Care Excellence (NICE) guidance has discouraged interceptive extraction resulting in later morbidity in many patients (15), (16) Tooth eruption as a tool for age estimation can utilize either clinical or radiographic assessment. The clinical method depends on the observation of a few stages of the tooth eruption process that occur within the oral cavity. However, the method is prone to errors or inaccuracies due to a number of factors that directly affect the tooth emergence process such as malnutrition, ankylosis, early or delayed extraction of the deciduous tooth, impaction, and overcrowding of the permanent teeth (16). Nonetheless, due to its simplicity and low cost, the method is still being used in developing countries where eruption stages of the third molar are routinely employed in age estimation among juveniles undergoing judicial proceedings (17), (18)

On the other hand, the OPG can be used to observe tooth eruption stages while the tooth is still within bone and after it has emerged into the oral cavity (14), implying the method is more reliable for forensic age estimation. In addition, among adolescents and young adults, the third molar is preferred for dental age estimation because it is the tooth still developing after 14 years of age. Despite its popularity, however, the third molar has a high variability in the age of eruption, anatomical features, and agenesis, which may have an impact on age estimation.

### Conclusion

The findings of this study form the basis for age estimation for Saudi population based on the alveolar, gingival, and complete eruption of the third molars. However, caution should be exercised when using third molar eruption, especially because of the potential errors involved.

**References**

1. Dodson TB, Susarla SM. Impacted wisdom teeth. *BMJ Clin Evid* [Internet]. 2014 Aug 29;2014:1302. Available from: <https://pubmed.ncbi.nlm.nih.gov/25170946>
2. Gay-Escoda C, Sánchez-Torres A, Borrás-Ferreres J, Valmaseda-Castellón E. Third molar surgical difficulty scales: systematic review and preoperative assessment form. *Med Oral Patol Oral Cir Bucal*. 2021 Dec;
3. Renton T, Wilson NHF. Problems with erupting wisdom teeth: signs, symptoms, and management. *Br J Gen Pract*. 2016;66(649):e606–8.
4. Bailey E, Kashbour W, Shah N, Worthington H V, Renton TF, Coulthard P. Surgical techniques for the removal of mandibular wisdom teeth. *Cochrane Database Syst Rev*. 2020;(7).
5. Marciani RD. Third molar removal: an overview of indications, imaging, evaluation, and assessment of risk. *Oral Maxillofac Surg Clin*. 2007;19(1):1–13.
6. Schneider T, Filo K, Kruse AL, Locher M, Grätz KW, Lübbers H-T. Variations in the anatomical positioning of impacted mandibular wisdom teeth and their practical implications. *Swiss Dent J*. 2014;124(5):520–38.
7. Kaur N, Nagpal A. Extracted wisdom teeth: Preserve or discard???. *Dent Res J (Isfahan)* [Internet]. 2013 May;10(3):408. Available from: <https://pubmed.ncbi.nlm.nih.gov/24019814>
8. Friedman JW. The prophylactic extraction of third molars: a public health hazard. *Am J Public Health* [Internet]. 2007/07/31. 2007 Sep;97(9):1554–9. Available from: <https://pubmed.ncbi.nlm.nih.gov/17666691>
9. Peñarrocha-Diago M, Camps-Font O, Sánchez-Torres A, Figueiredo R, Sánchez-Garcés M-A, Gay-Escoda C. Indications of the extraction of symptomatic impacted third molars. A systematic review. *J Clin Exp Dent* [Internet]. 2021 Mar 1;13(3):e278–86. Available from: <https://pubmed.ncbi.nlm.nih.gov/33680330>
10. Ghaemina H, Nienhuijs M El, Toedtling V, Perry J, Tummers M, Hoppenreijts TJ, et al. Surgical removal versus retention for the management of asymptomatic disease-free impacted wisdom teeth. *Cochrane database Syst Rev*. 2020 May;5(5):CD003879.
11. Sigron GR, Pourmand PP, Mache B, Stadlinger B, Locher MC. The most common complications after wisdom-tooth removal: part 1: a retrospective study of 1,199 cases in the mandible. *Swiss Dent J*. 2014;124(10):1042-1046,1052-1056.
12. Olze A, van Niekerk P, Ishikawa T, Zhu BL, Schulz R, Maeda H, et al. Comparative study on the effect of ethnicity on wisdom tooth eruption. *Int J Legal Med*. 2007 Nov;121(6):445–8.
13. Schmeling A, Grundmann C, Fuhrmann A, Kaatsch H-J, Knell B, Ramsthaler F, et al. Criteria for age estimation in living individuals. *Int J Legal Med*. 2008 Nov;122(6):457–60.
14. Schmeling A, Garamendi PM, Prieto JL, Landa MI. Forensic Age Estimation in Unaccompanied Minors and Young Living Adults. *Forensic Med - From Old Probl to New Challenges* [Internet]. 2011 Sep 12 [cited 2021 Dec 8]; Available from: <https://www.intechopen.com/chapters/19163>
15. Brkić H, Vodanović M, Dumancić J, Lovrić Z, Cuković-Bagić I, Petrovečki M. The chronology of third molar eruption in the Croatian

- population. *Coll Antropol.* 2011 Jun;35(2):353–7.
16. Suri L, Gagari E, Vastardis H. Delayed tooth eruption: pathogenesis, diagnosis, and treatment. A literature review. *Am J Orthod Dentofac Orthop Off Publ Am Assoc Orthod its Const Soc Am Board Orthod.* 2004 Oct;126(4):432–45.
17. Olze A, Peschke C, Schulz R, Schmeling A. Studies of the chronological course of wisdom tooth eruption in a German population. *J Forensic Leg Med.* 2008 Oct;15(7):426–9.
18. Olze A, van Niekerk P, Schulz R, Schmeling A. Studies of the chronological course of wisdom tooth eruption in a Black African population. *J Forensic Sci.* 2007 Sep;52(5):1161–3.