

Insights into Wisdom Tooth Eruption Patterns Among the Student of Sahara Medical College Narowal: A Comprehensive Comparative Analysis

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Abstract

Objective: The time of eruption of wisdom tooth predicts the age of the person.

Material and Methods: Study holds a comparative analysis of 293 students regarding wisdom tooth eruption status was categorized into fully erupted, partially erupted, un-erupted or surgically maneuvered. Statistical analysis, including descriptive statistics and correlation analysis, was performed to establish relationships between age and eruption status.

Results: Preliminary findings suggest a statistically insignificant relationship between the age of the students and the eruption status of their wisdom teeth. The majority of students aged 19-23 years exhibited various stages of wisdom tooth eruption.

Discussion: The results suggestion indicate that there is a discernible correlation between the age of individuals (within the age group of 19-23 years) and the eruption status of their wisdom teeth.

Conclusion: Estimation of age based on the eruption time of wisdom teeth holds promise as a non-invasive and easily accessible method. Within the specific age range of 19-23 years the wisdom tooth is inconclusive.

Keywords: Wisdom teeth, age estimation, eruption time, medical students, forensic odontology, dental anthropology.

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Introduction

Age is a continuous process and certain changes are accompanied with it. The molar teeth also referred as third molars are the least among the teeth that erupt in the back corner of an individual. The expected age is adolescence or within the onset of adulthood typically between 17 to 25 years of age.¹ Every human being is blessed with a set of four individual teeth on back ends of all the four rows of the mouth with two in upper and two in lower region. Wisdom teeth are well

narrated as third molars because these represent the third set of the group to erupt following the first set and second set. The usual age of eruption is adolescence or early adulthood. It is absolutely not necessary to have all or some of the wisdom teeth to erupt. Some may never have any wisdom tooth at all.²

The eruption of wisdom teeth are subject to several factors like that of space issues on the jaw at the site where it has to erupt. The improper alignment or partial eruption are the other issues. The common problems can be impaction blocking the tooth from fully being erupted, teeth crowding, hygiene and infections, diseases of gums associated pain and damage by and to the neighboring teeth.³ Subject to the issues described above wisdom teeth frequently need assessment for complications and oral hygiene. Sometime the same may need surgical removal. The term “wisdom” is associated with these teeth as in general consideration they appear or erupt in the part of an individual’s age where he or she is relatively mature being in late teens or in early twenties.⁴ The association between age and wisdom tooth eruption

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always remained under debate for different reasons like that of genetic, environmental and nutritional variations.⁵ This in line with contemporary dental data research emphasizing a multifactorial nature of wisdom teeth, their time of eruption and the need for a comprehensive evaluation that cover various factors beyond age.⁶ The observation highlights the need for a personalized comprehensive approach to wisdom tooth assessment, integrating diverse parameters of diverse nature and latest imaging techniques to corroborate the parameters of age assessment.⁷ Further research encompassing a broader age spectrum and incorporating advanced diagnostic methodologies is advocated to refine our understanding of the intricate factors influencing wisdom tooth eruption and age correlation⁸. The study aims to provide valuable insights into the potential utility of wisdom tooth eruption as an indicator for estimating age within this specific age.

Materials and Methods

Data for this study were collected from a targeted population of students within the age range of 19-23 years Sahara Medical College. The research involved administering a structured questionnaire to gather information regarding the eruption status of wisdom teeth. Prior to data collection, informed consent was obtained from each participant, explaining the nature and purpose of the study, the voluntary nature of participation, and the assurance of data confidentiality. Furthermore, this study received approval from the Institutional Review Board (IRB) of the institute, ensuring ethical adherence and compliance with established research protocols. The questionnaire specifically inquired about the presence or absence of erupted wisdom teeth, categorizing individuals into those with fully erupted, partially erupted, unerupted, or surgically removed wisdom teeth. Eruption of any part of the wisdom tooth was considered as evidence of wisdom tooth eruption.

The study utilized a cross-sectional study design, which allowed for the collection of data at a single point in time, providing a snapshot of the eruption status of wisdom teeth within the targeted age range. The sample size for this research comprised 293 participants, representing the population of medical school students aged 19-23 years during third year of their academic session during 2021 to 2023. A purposive convenient sampling technique was employed, targeting students within the specified age range who were willing to participate. This method was chosen to ensure the inclusion of indi-

viduals within the relevant age group and to obtain data that accurately represented the age bracket under investigation. The purposive sampling method also facilitated the efficient collection of data from a population readily available within the educational institution.

Results

The study included 293 research participants. There were 5 students of 19 years of age, 73 students of age of 20 years, 152 were 21 years old while 60 students were 22 years of age and lastly there were only three students in the 23rd years of their age. The frequencies are shown in the table 01 below. Out of 293 students there were 106 (36.2%) males just and remaining 187 (63.8%) were females. The composition depicts almost 1:3 ratio from male to female respectively. The frequencies are shown in table 02 below. The table 03 below provides data on the eruption status of wisdom teeth among the study population. The sample size is 293, representing the medical school student population within the age range of 19-23 years. The category of fully erupted wisdom tooth composed of 10.2% or 30 students among a total of 293 sample under study. The group included the subjects who have got their wisdom tooth or teeth completely visible breaking the gum structure. The group just represent a 10th of the proportion of the entire population selected for research. The next category comprised of the portion of the research participants who presented with partial eruption were 108 in count making it 36.9% being just above one third of the population. But it still represents the second most common class of the research. The group represents the stage of eruption where tooth or teeth have started emerging the surface of gum structure but not fully visible. Almost exactly the half of the population and highest of its proportion presented with no eruption at all. It was 50.9% from a group of 149 subjects. They experienced no feeling of eruption of wisdom teeth or any pain at the site of eruption and neither any other associated symptoms regarding eruption of the tooth. It is worth mentioning that the cases were maximum of up to 23 years of age where just 3 from that year and 60 cases were 22nd year of their age. Lastly a group of cases who had to undergo surgical removal of the wisdom tooth due to any reason. There were 6 such cases making a valid proportion of 2% of the research sample. The reasons of surgical removal could be impaction, associated pain, overcrowding or any other issue hampering oral cavity functioning. The surgical intervention

is common modality opted for problematic wisdom tooth.

Table 1: Age

Serial No.	Age (in Years)	Frequency	Valid Percentage
1.	19	5	1.6
2.	20	73	24.9
3.	21	152	51.9
4.	22	60	20.5
5.	23	3	1.0
Total		293	100.0

Table 2: Gender

Serial No.	Gender	Frequency	Valid Percentage
1.	Male	106	36.2
2.	Female	187	63.8
Total		293	100.0

Table 3: Eruption of Wisdom Tooth versus the Age

Serial No.	Status of Wisdom Tooth Eruption	Frequency	Percentage	p value
1.	Fully erupted	30	10.2	0.110
2.	Partially erupted	108	36.9	
3.	Not erupted	149	50.9	
4.	Surgically removed	6	2.0	
Total		293	100.0	

Discussion

The research aimed to explore the relationship between the eruption status of wisdom teeth and the age of individuals chosen between 19 years to 23 years of age limit from a medical school student population. A cohort of 293 individuals was analyzed, considering categories of eruption status: fully erupted, partially erupted, unerupted, and surgically removed. The result indicated an insignificant p-value of 0.110 in the association between wisdom tooth eruption status and age among the selected population (ages 19-23 years). The results were consistent with recent research in dental and oral health.⁹ These findings suggest that within this specific age range, the eruption of wisdom teeth is not significantly correlated with age¹⁰. This outcome aligns with the understanding that wisdom tooth eruption is highly variable and influenced by a range of genetic, environmental, and individual factors.^{5,11} Recent research has increasingly emphasized the multifactorial nature of wisdom tooth eruption, highlighting genetic predispositions, craniofacial growth patterns, and individual differences in tooth development as significant determinants¹². While age remains a general indicator for

the potential eruption of wisdom teeth, it is not a precise predictor within this narrow age bracket due to the diverse pace of dental development observed in individuals.

The insignificance of the association underscores the need for a more comprehensive and personalized approach when assessing the eruption of wisdom teeth¹³. Factors such as dental development, skeletal maturity, and overall health should be considered alongside age to develop a more accurate estimation of wisdom tooth eruption^{14,15}. Dental practitioners and researchers should utilize a holistic approach, integrating various parameters and advanced imaging techniques, to tailor recommendations and interventions for individuals in this age group.

Conclusion

In conclusion, the findings of this study, corroborated by an insignificant p-value from the statistical analysis, indicate that wisdom tooth eruption is not significantly associated with age among individuals within age bracket of 19-23 years in the medical school student population. Recent research supports the understanding that wisdom tooth eruption is a complex process influenced by a multitude of factors, making it challenging to establish a definitive correlation with age within this specific age range.

It is imperative for dental practitioners and researchers to consider a holistic assessment of dental development, skeletal maturation, and individual variations in tooth eruption patterns when evaluating wisdom tooth eruption. It is purely a subject of forensic deontologist and dental anthropology to emphasize on the area of interest. Further research focusing on a broader age spectrum and incorporating advanced diagnostic methods is warranted to enhance our understanding of the intricate factors influencing wisdom tooth eruption and age correlation, ultimately improving dental health assessment and management.

Conflict of Interest *None*

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Authors Contribution

FM: Conceptualization of Project

AS: Data Collection

ZAB: Literature Search

MM: Statistical Analysis

AS: Drafting, Revision

MASF: Writing of Manuscript