

Reasons For Extraction Of Teeth In The Age Group Of 18-25 Years - An Institutional Study

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Abstract

Tooth Loss Remains To Be A Major Oral Health Problem In A Population Worldwide. Extractions Of Permanent Teeth Is Performed For Several Reasons Such As Dental Caries, Periodontal Diseases, Traumatic Injuries, Prosthetic Considerations, Orthodontic Treatment, Failed Endodontic Treatment And Tooth Impaction. The Main Aim Of Our Study Was To Assess The Reasons For Extractions Of Teeth In The Age Group Of 18-25 Years In Our Institution. A Single Centre Retrospective Study Was Done From June 2019 – March 2020. Out Of 12455 Patients Who Underwent Extraction Of Their Teeth, 820 Patients Had Undergone Extraction In The Age Group Of 18 - 25 Years. Data Of These Patients Were Retrieved From The Digital Case Records Of The Department Of Oral And Maxillofacial Surgery. Once The Data Was Obtained And Verified With The Help Of Photographs, It Was Statistically Analyzed Using Spss By Ibm Version 23.0. Descriptive Analysis Was Used To Describe The Gender And Age Distribution, Reason For Extraction. Chi-Square Test Was Used To Test Associations Between Categorical Variables. P Value < 0.05 Was Considered Statistically Significant. In Our Study, Males (54.02%) Had Undergone More Extractions Than Females (45.98%). Extractions Were More Prevalent In Patients In The Age Group Of 24-25 Years (34.60%) Followed By 22-23 Years (27.38%). Dental Caries Was The Most Reason For Extraction (45.39%). No Statistically Significant Association Was Present Between Gender And Age Group Of The Patients (P Value - 0.263). There Was A Statistically Significant Association Present Between The Gender And Reason For Extraction (P Value - 0.001). Within The Limits Of The Current Study, Males Had Undergone More Extractions Than Females, And Predominantly In The 24-25 Age Group. Most Common Reason For Extraction Of Teeth Was Dental Caries. There Was A Significant Association Between Gender Of The Patients And Reasons For Extraction Of Teeth.

Keywords:

Dental Caries, Extraction, Impaction, Tooth, Periodontal Disease, Reasons

Introduction

Tooth Extraction Is The One Of The Most Commonly Performed Procedures. A Decrease In The Number Of Teeth May Lead To Deterioration Of Quality Of Life. The Number Of Extracted Teeth Can Be An Indicator Of Socio Economic And Oral Hygiene Level [1] . Tooth Loss Is Often Associated With Poor Oral Health Which In Turn Can Affect The Overall Health Of An Individual [2]. Extraction Of Permanent Teeth Is Performed For Several Reasons Including Dental Caries, Periodontal Disease, Orthodontic Reasons, Impacted Teeth, Failed Dental Treatment, Prosthetic Indication And Other Reasons [3] [4] [5]. Several Studies Have Been Conducted Worldwide On This Issue And Most Of The Studies Indicated Dental Caries As The Major Cause Of Tooth Extraction [6,7]. Additionally With Ageing, The Cause Of Extraction Differs And Periodontitis Becomes The Leading Cause [8]. Dental Caries And Periodontal Disease Looks Like The Two Main Reasons For Tooth Extractions [6].

Extraction Of Single Or Multiple Teeth Has Significant Effect On Masticatory Efficiency, Aesthetics, Speech As Well As Occlusal Harmony And Periodontal Health Of The Individuals [9]. Many Researchers Give The Results Among Various Factors For Extraction As Dental Caries And Periodontal Disease And Mainly Molars Are Most Extracted Teeth When Compared To Others [10].

An Understanding Of The Reasons Why Teeth Are Extracted Is Essential To Improve Oral Health Outcomes. A Large Number Of Cross-Sectional Studies Have Been Investigated For Tooth Loss In Different Countries. Dental Caries Was The Main Cause For Tooth Loss[11] [12], But A Few Studies Revealed That A Greater Proportion Of Tooth Extractions Were Due To Periodontal Disease [1]. The Lower Prevalence Of Tooth Loss In Developed Countries Can Be Explained By Prevention Programs And Higher Accessibility To Oral Health Care . Previously Our Team Has A Rich Experience In Working On Various Research Projects Across Multiple Disciplines The [13–15][16–27].

The Main Aim Of Our Study Was To Assess The Reasons For Extractions Of Teeth In The Age Group Of 18-25 Years In Our Institution.

Materials And Methods

Study Design And Study Setting

This University Setting Retrospective Study Was Conducted In The Department Of Oral And Maxillofacial Surgery, Saveetha Dental College And Hospital, Saveetha University, Chennai, Among Patients Who Reported To Our Institution From June 2019 To March 2020 And Have Undergone Tooth Extraction Were Included In Our Study. The Study Was Initiated After Approval From The Institutional Review Board. (Sdc/Sihcc/2020/Diasdata/0619-0320). The Main Pros Of This Study Was Easy Data Retrieval, Large Amount Of Data, Less Time Consumption To Retrieve The Data. The Cons Of The Study Are Patients Limited To Certain Geographical Isolation.

Study Population And Sampling

Digital Case Records Of 86,000 Patients Who Reported To Saveetha Dental College From June 2019 To March 2020 For Various Reasons Were Reviewed And Consecutive Case Records Of All The Patients Undergoing Extraction In The Age Group Of 18-25 Years Were Included In The Study. Thus Our Study Sample Consisted Of 820 Patients Undergoing Extraction Of Teeth. The Exclusion Criteria Was Missing Or Incomplete Data. Cross Verification Of Data For Errors Was Done With The Help Of An External Examiner.

Data Collection And Tabulation

All Relevant Data Was Collected From Digital Case Records By A Single Calibrated Examiner Which Included Age, Gender, And Reason For Extraction Provided For The Patients Undergone Extraction. Data Was Tabulated In Excel And Imported To Spss Where The Variables Were Defined.

Statistical Analysis

The Collected Data Was Validated, Tabulated And Analysed With Statistical Package For Social Sciences For Windows, Version 23.0 (Spss Inc., Chicago, Il, Usa) And Results Were Obtained. Descriptive Analysis Was Used To Describe The Gender And Age Distribution, Reasons For Extraction. Categorical Variables Were Expressed In Frequency And Percentage; And Continuous Variables In Mean And Standard Deviation. Chi-Square Test Was Used To Test Associations Between Categorical Variables. P Value < 0.05 Was Considered Statistically Significant.

Results

Out Of 12455 Patients Who Underwent Extraction Of Their Teeth, 820 Patients Had Undergone Extraction In The Age Group Of 18 - 25 Years. Our Present Study Showed That Males 443(54.02%) Had Undergone More Extractions Than Females 377(45.98%) (Figure 1). In Our Study, Most Of The Patients 283(34.60%) Were In The Age Group Of 24-25 Years, Followed By 224(27.38%) In 22-23 Years, 172(21.03%) In 20-21 Years And 139(16.99%) In 18-19 Years. It Is Evident That Extraction Was More Prevalent In The Age Group Of 24-25 Years (34.60%) (Figure 2). The Results Revealed That Dental Caries Had Caused 571(45.3%) Extractions, Followed By Orthodontic Extraction 271(21.5%), Impactions 198(15.7%), Root Stumps 97(7.7%), Deciduous Extraction 74(5.9%), Periodontal 34(2.7%) And The Least Being Trauma 13(1%). Thus It Is Evident That Dental Caries (45.3%) Was The Most Common Reason For Extraction In Our Study Population. (Figure 3).

According To Our Study, Among The 24-25 Years Age Group, 18.58% Males And 16.01% Females Had Undergone Extraction. In The 22-23 Years Age Group, 16.26% Males And 11.12% Females Have Undergone Extraction. In The 20-21 Years Age Group, 10.51% Of Males And Females Have Undergone Extraction And The Least Being In The Age Group Of 18-19 Years, 8.80% Males And 8.19% Females Have Undergone Extraction. Patients In The Age Group Of 24-25 Years Had The Highest Incidence Of Extractions. However On Evaluating The Association Between Age Category And Gender Of The Patients, Pearson Chi-Square Test Revealed A P Value Of 0.263(>0.05) And The Results Were Statistically Not Significant. Thus, There Was No Statistically Significant Association Between Age Group And Gender. Patients In The Age Groups Of 24-25 Years, Especially Males Had The Highest Incidence Of Extraction Compared To Other Age Groups, However The Results Were Statistically Not Significant. (Figure 4).

According To Our Study, Among Males, 29.27% Of Extractions Were Due To Dental Caries, 7.93% Were Due To Impactions, 5.12% Due To Orthodontic Extractions, 5.37% Due To Root Stumps, 3.29% Due To Deciduous Extractions, 1.95% Due To Periodontal Disease And The Least Being Trauma With 1.10%. Whereas In Females, 25.61% Of Extractions Were Due To Dental Caries, 9.76% Were Due To Impactions, 4.88% Due To Orthodontic Extractions, 2.32% Due To Root Stumps, 2.93% Due To Deciduous Extractions, 0.37% Due To Periodontal Disease And The Least Being Trauma With 0.12%. Thus, Dental Caries Were The Most Reason For Extraction In Both Males And Females. On Evaluating The Association Between Gender Of Patients And Reasons For Extraction Of Teeth, Pearson's Chi-Square Test Revealed A P Value Of 0.001(<0.05) And The Results Were Statistically Significant. Thus There Was A Statistically Significant Association Between The Gender And The Reason For Extraction Of Teeth. Dental Caries Was The Most Common Reason For Extraction In Both Males And Females And The Results Were Statistically Significant. (Figure 5).

Discussion

Great Variation Exists In The Frequency And Causes Of Tooth Extraction In Different Countries [28]. For Example, Dental Caries Are Responsible For The Majority Of The Extraction In A Wide Range Of 25% To 70% In The Literature [29]. This Situation Can Be Explained With Sample Size, Study Design, Geographic And Genetic Diversities [30]. Anand Et Al , In A Study On Reasons For Extraction Of Teeth In A Teaching Institution Also Reported That Dental Caries Was The Main Cause For Extraction Of Teeth Which Is In Correlation With Our Study. As Regards, Surgical Extraction Of Impacted Teeth Were Performed More On Males (77.3%) When Compared To Females, There Is No Specific Reason For Male Predominance [31].

Extraction For Orthodontic Reasons Has Been Performed For Decades In Daily Dental Practice, These Extractions Are Performed Either To Prevent Malocclusion Or To Gain Space [32]. Extraction Due To Orthodontic Reasons Is

Strongly Related To Age [33] [34]. A Study Was Conducted In Japan Showed That 95.5% Of Extractions In Patients Younger Than 16 Years Were Due To Orthodontic Reasons; In This Study The Total Extractions Due To Orthodontic Reasons Were 20% [35] As In Our Study Too The Orthodontic Extraction Were See In A Younger Age Group. In A Study Conducted By Fardal Et Al, He Reported That Extraction In Males Is More Due To Periodontitis Because Of Adverse Habits Of Smoking, Use Of Tobacco And Arecanut [36]. Hamasha Et Al [37] Suggested That Controversial Findings Between Studies Could Be Explained By Differences In The Characteristics Of The Study Population, Cultural Beliefs, And Socio Economic Variations. Poor Socio Economic Conditions Cause Difficulty In Reach Of Dental Care And Most People Are Exposed To Extraction Of Their Teeth. Periodontal Diseases Appeared To Be A Leading Cause Of Dental Extraction In Elderly People [38] [39]. This Is Due To Periodontitis, Which Is A Chronic Disease Affected By Many Causative And Aggravating Factors, Which Act Throughout Life. When Compared To Our Study Periodontitis Was One Of The Least Common Factors For Extraction As The Prevalence Of Periodontitis In A Younger Population Is Scarce.

The Effect Of Gender Variation On Causes Of Dental Extractions Was Discussed By Several Authors, Such As Mc Garth And Bedi Who Found That There Were Gender Variations In The Psychological And Social Impact On Oral Health [40]. Our Results Showed That More Extractions Because Of Caries Were Carried Out For Males (29.27%), This Finding Was In Agreement With That Of Reich [41], But This Did Not Prove To Be Statistically Significant.

Many Studies Have Been Done In The Past To Find Out Various Reasons For Extraction Of Teeth. Most Of The Studies Claim Different Findings And Results. Our Institution Is Passionate About High Quality Evidence Based Research And Has Excelled In Various Fields ([42–52]. Few Factors Can Be Attributed To These Differences. These Include, Type And Methodology Of The Study, Socioeconomic Status, Extense Of Pathology, Gender And Age Of The Patient. These Differences In Finding Also Attribute To The Patients Attitude, Availability And Accessibility Of Care With Prevailing Philosophies.

Conclusion

Within The Limits Of The Current Study, Males Had Undergone More Extractions Than Females, And Predominantly In The 24-25 Age Group. Most Common Reason For Extraction Of Teeth Was Dental Caries. There Was A Significant Association Between Gender Of The Patients And Reasons For Extraction Of Teeth.

Author Contribution

Roghith Kannan Performed The Analysis, Interpretation And Wrote The Manuscript. Second Author Santhosh Kumar M.P Contributed To Conception, Data Design, Analysis, Interpretation And Critically Revised The Manuscript. Revathi D Participated In The Study And Revised The Manuscript. All The Three Authors Have Discussed The Results And Contributed To The Final Manuscript.

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Conflict Of Interest

No Conflict Of Interest.

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Graphs

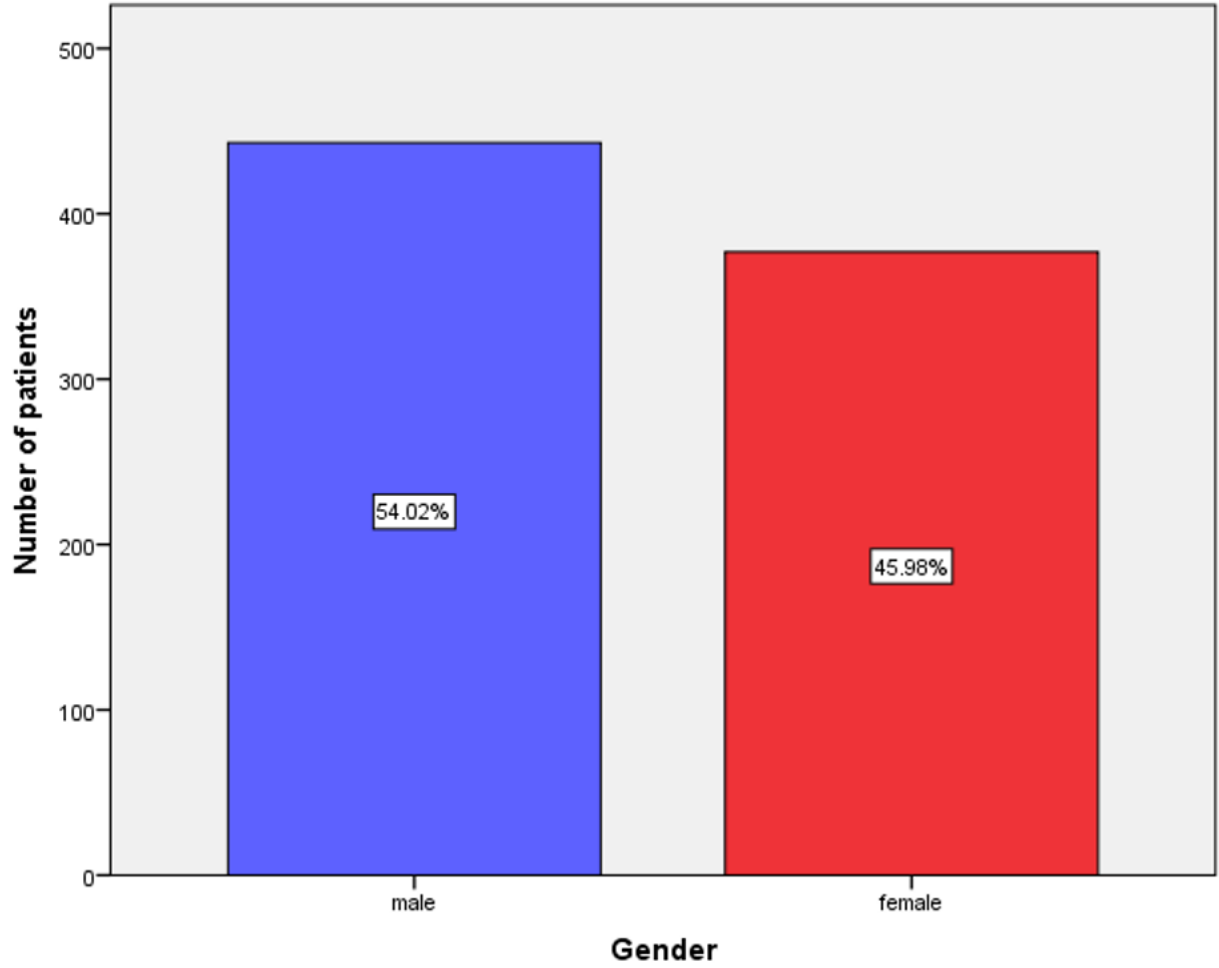


Figure 1 : Bar Chart Depicts The Gender Distribution Of Patients Undergoing Extraction Of Teeth. X Axis Represents The Gender And Y Axis Represents The Number Of Patients Undergoing Extraction Of Teeth. Males 443(54.02%) Had Undergone More Extraction Than Females 377(45.98%) In Our Study Population.

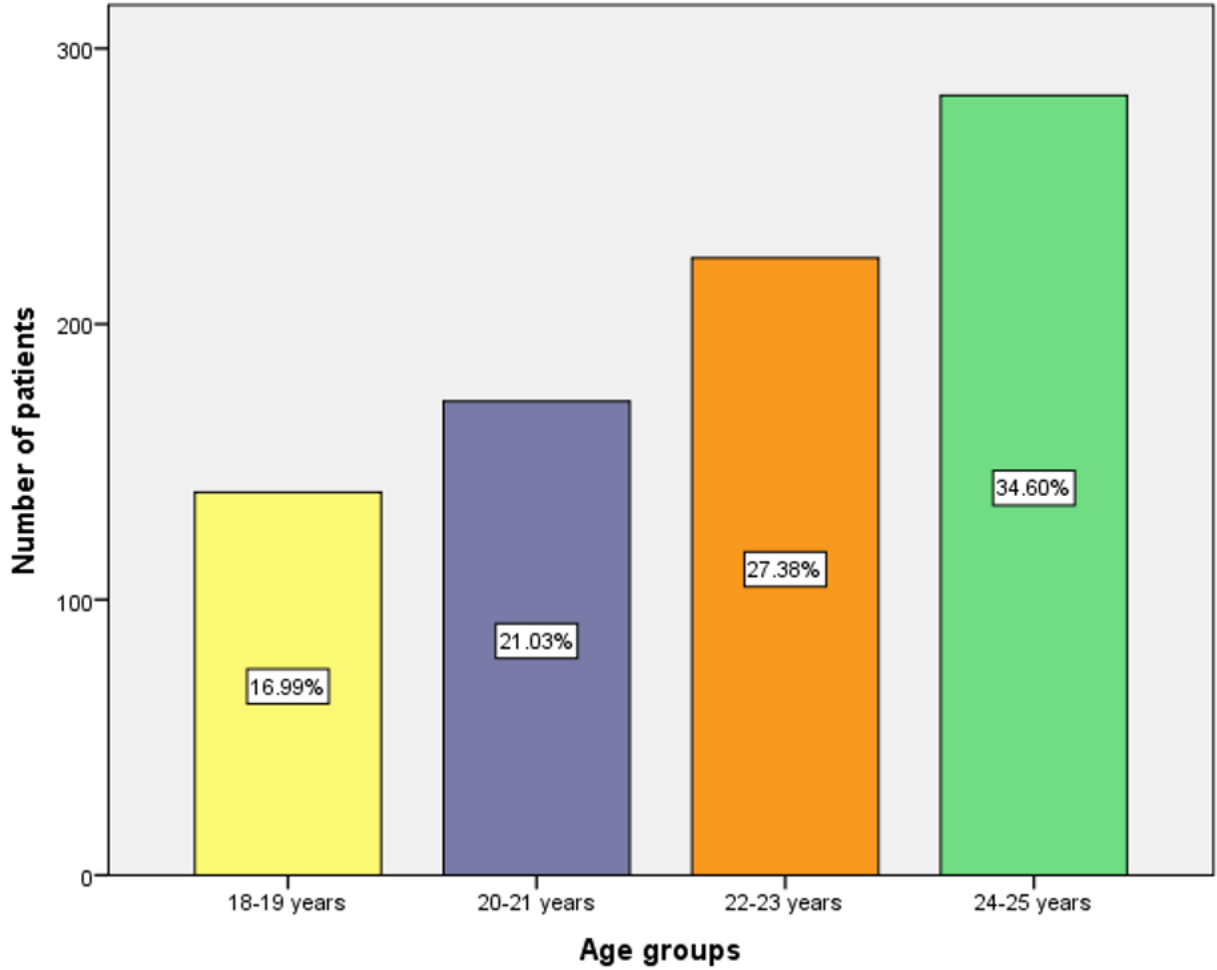


Figure 2 : Bar Diagram Depicts Age Distribution Of Patients Undergoing Extraction Of Teeth. X Axis Represents Age Group And Y Axis Represents The Number Of Patients Undergoing Extractions Of Teeth. Most Of The Patients 283(34.60%) Were In The Age Group Of 24-25 Years, Followed By 224(27.38%) In 22-23 Years,172(21.03%) In 20 - 21 Years And 139(19.99%) In 18-19 Years. It Is Evident That Extraction Was More Prevalent In The Age Group Of 24-25 Years.

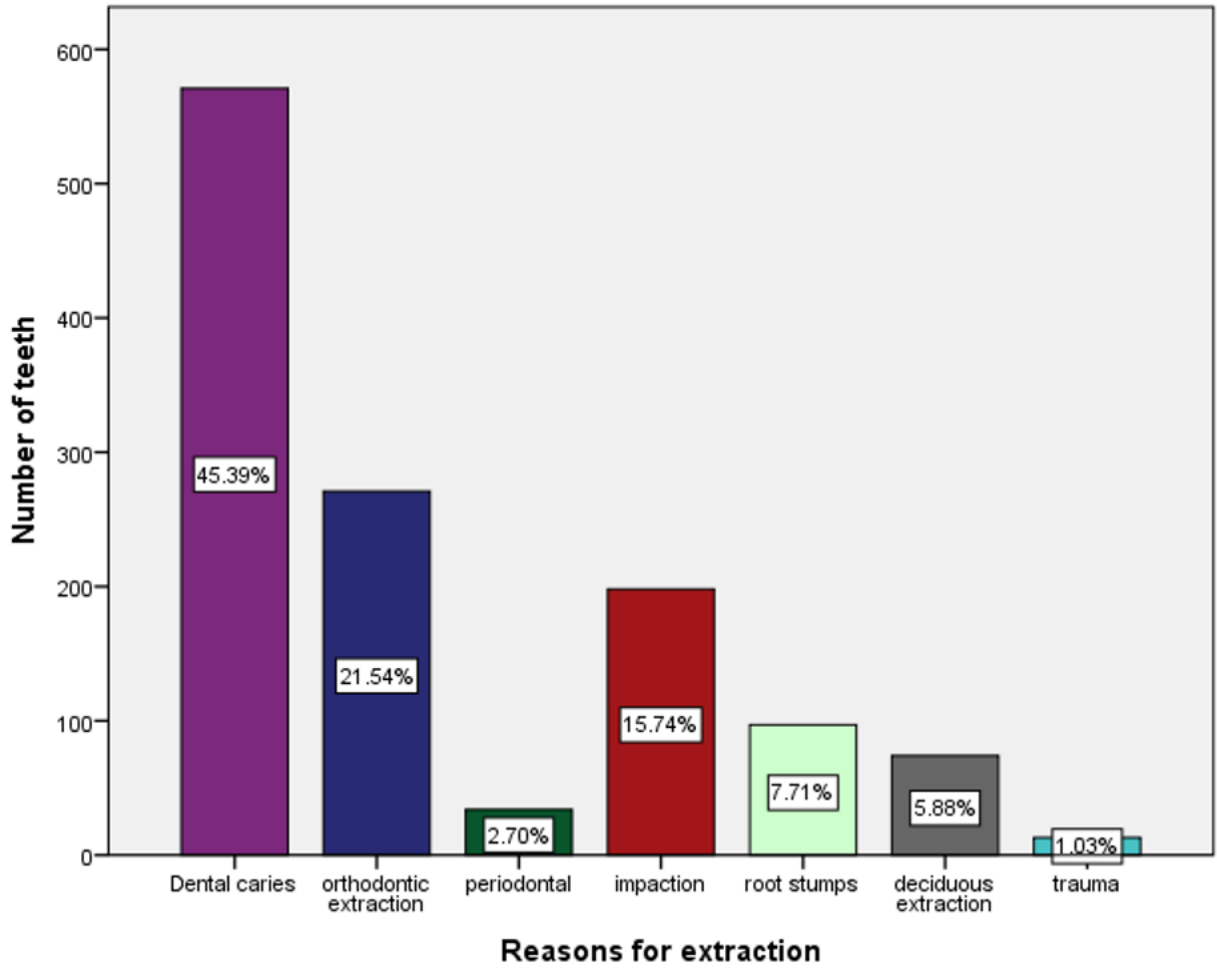


Figure 3 : Bar Chart Depicts The Distribution Of Reasons For Extraction Of Teeth. X Axis Represents The Reasons For Extraction And Y Axis Represents The Number Of Patients Undergoing Extractions Of Teeth. For 571(45.39%) Teeth, Dental Caries Was The Reason For Extraction, 271(21.54%) Teeth- Orthodontic Extractions, 198(15.74%) Teeth -Impactions, 97(7.71%) Teeth - Root Stumps, 74(5.88%) Teeth- Deciduous Extraction, 34(2.70%) Teeth- Periodontal And 13(1.03%) Teeth- Trauma. It Is Evident That Dental Caries Was The Most Common Reason For Extraction In Our Study Population (45.39%).

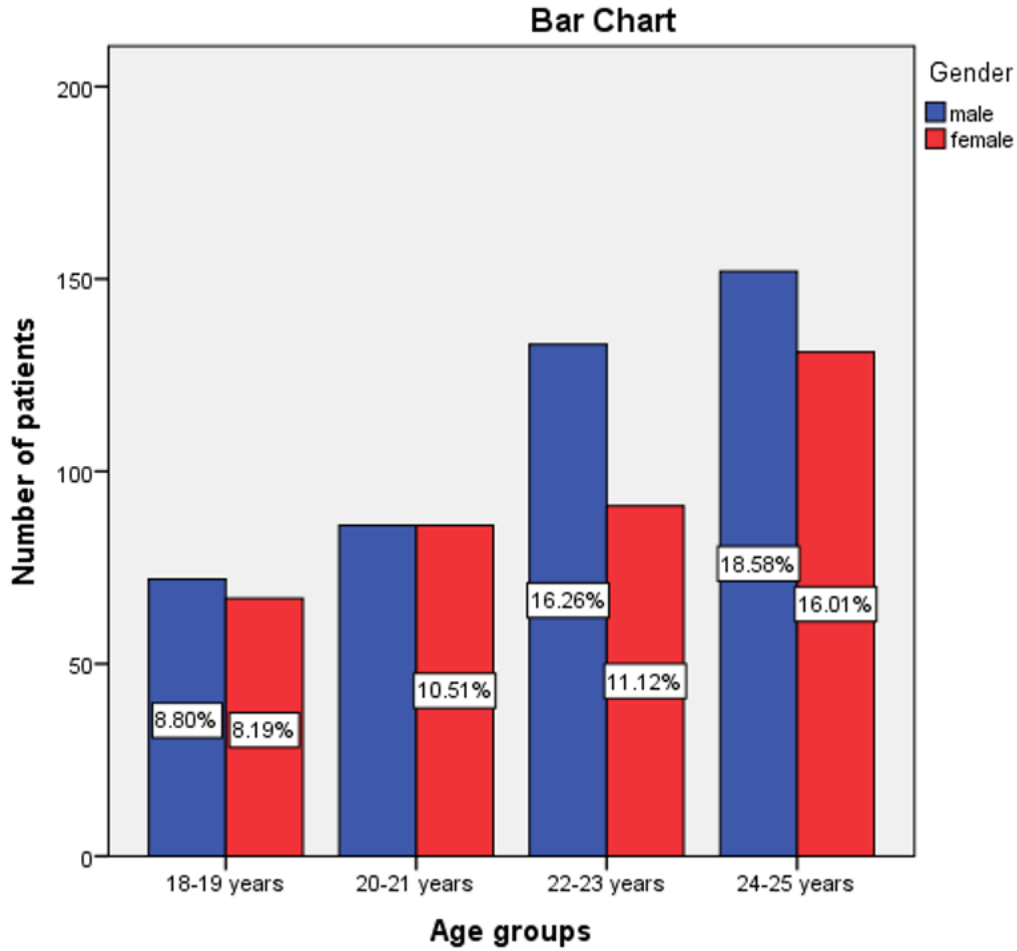


Figure 4 : Bar Chart Depicting The Association Between Age Groups And Gender Of Patients Undergoing Extraction Of Teeth. X Axis Represents The Age Groups And Y Axis Represents The Number Of Patients Undergoing Extraction Of Teeth In Each Gender. Pearson’s Chi-Square Revealed - 3.988, P Value = 0.263 (>0.05)) And The Results Were Statistically Not Significant. Thus There Was No Statistically Significant Association Between Age Groups And Gender Of The Patients. Patients In The Age Groups Of 24-25 Years, Especially Males Had The Highest Incidence Of Extraction Compared To Other Age Groups, However The Results Were Statistically Not Significant.

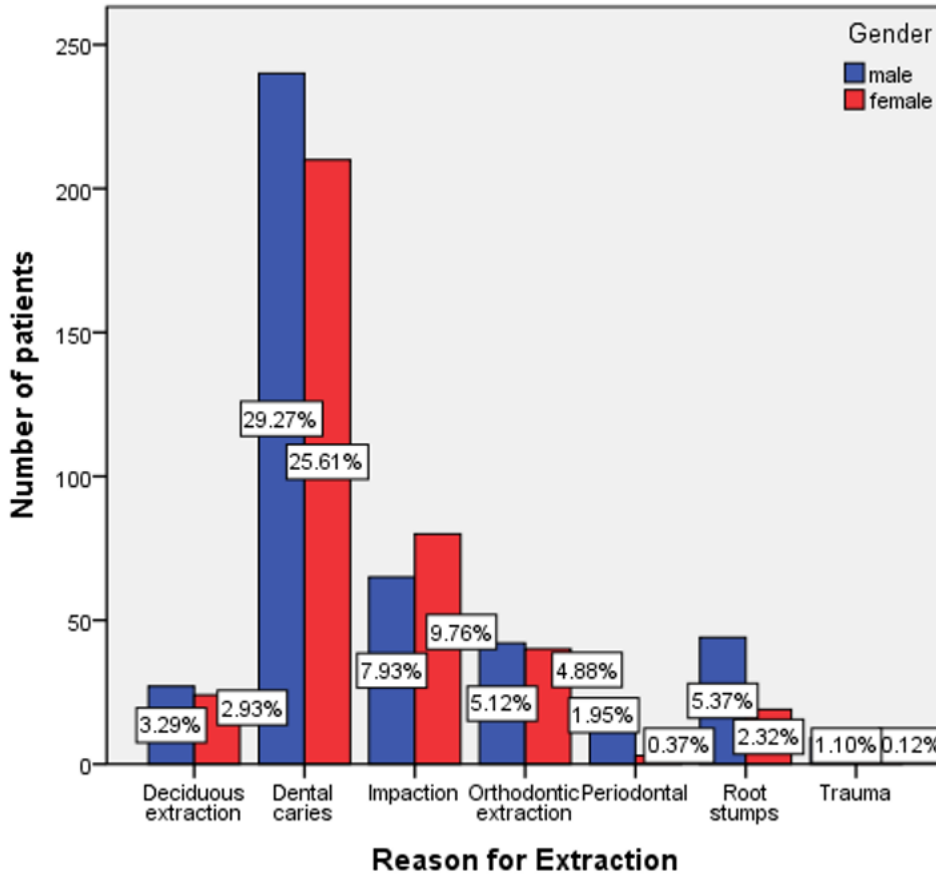


Figure 5: Bar Chart Depicting The Association Between Reasons For Extraction Of Teeth And Gender Of Patients Undergoing Extraction Of Teeth. X Axis Represents The Reasons For Extraction And Y Axis Represents The Number Of Patients Undergoing Extraction Of Teeth In Each Gender. Pearson’s Chi-Square Test Revealed 23.835, P Value = 0.001 (<0.05) And The Results Were Statistically Significant. Thus There Was A Statistically Significant Association Between The Reason For Extraction And Gender. Dental Caries Was The Most Common Reason For Extraction In Both Males And Females And The Results Were Statistically Significant.