



## The Prevalence of Tooth Wears Among (18-25) Years Old College Students in Sulaimani City

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### Abstract:

Non-carious loss of tooth structure is considered the 4<sup>th</sup> dimension risk factor for aesthetic, function and longevity of human dentition after acute trauma, caries and periodontal disease. The aim of this study was to determine the prevalence and risk indicators for tooth wear in (18- 25) years in Sulaimani city. A total of 500 randomly selected college students were examined for tooth wear. The data were collected by means of a questionnaire about the history of possible causative factors and a clinical examination using Smith and Knight's index on occlusal/incisal, buccal and lingual/palatal surfaces. Mild tooth wear (score 1) was present in 63.4%, while only 0.4% had lesions extending up to the dentine. There were 36.2% without tooth wear, there is no evidence of score 3 or score 4. Incisal edges of both lower and upper teeth were the most affected site (75.51%). Occlusal problem was the most common predisposing factor (72.73%). Tooth wear defect did not form an urgent problem at 18-25 years aged group, there was only minimal enamel loss (63.4%, score 1) that attributed mainly to occlusal problems.

**Keyword:** Tooth wear, enamel loss.

### Introduction:

Tooth surface loss is the non-carious loss of tooth structures that creates functional, aesthetic or dental sensitivity problems. It results from either attrition (mechanical tooth to tooth contact) or erosion (progressive effect of acid) or abrasion (abnormal repetitive mechanical wear other than tooth to tooth contact) or their combination. It is considered to be a pathological condition when the amount of wear accelerates physiological tooth wear [1].

Most researchers agree that the reported prevalence of tooth wear is increasing, and it is a growing problem. This is explained partly by a greater awareness among clinicians and by the adult retaining more natural teeth as they age [1]. However, the prevalence of abrasion reduced dramatically in modern

industrialized societies because of the consumption of processed softer foods [2]. Furthermore, Bartlett described tooth wear process as a slow, minimally progressive in adult teeth [3].

In addition young individuals and adolescent appear to exhibit an increased tooth surface loss that many believe may be caused by more acidic food and beverages consumption with the habit of bruxism, that induce attrition and erosion [1,4], thus make this age group at greater risk for this problem. Beside their unusual dietary habits such as retaining an acidic beverage in the mouth before swallowing [5].

On the other hand, irregular position or mal-alignment of one or more teeth in one or in both jaws is a documented factor that related to significant incisal wear of the anterior teeth, and an insufficient space of the dental arches also is correlated with tooth wear [6].

Successful treatment of severe teeth wear requires that the etiological factors be identified and eliminated, then the restoration of the affected teeth is accomplished if required [7].

The aim of this study was to determine the prevalence of tooth wear among young college students aged (18–25) years old in Sulaimani city and identify the possible associated risk factors to provide a background data for treatment plan.

**Materials and Methods:**

Five hundred randomly selected students from the University of Sulaimani including both sexes, their age ranged between 18-25 years and were participating in the study after getting their acceptance.

Data were collected by mean of questionnaire which include; age, sex, and history of dental and food habits, any suggested or identified causative predisposing habit or risk factor that is remarked by authors or the student.

Clinical examination of the teeth for each person was done after ask him/her to sit on dental chair and clean his/her teeth with a piece of cotton to remove debris. Under the dental light, and by using dental mirror and probe all present permanent teeth were examined for the evidence of sign of tooth wear. The examination was performed in standardized method starting from the most posterior upper left side to the right side then downward from the most posterior tooth in the right side to the left side, excluding the 3<sup>rd</sup> molars. Teeth were examined for four surfaces namely cervical (C), buccal (B), occlusal (O) or incisal (I) and palatal (P) or lingual (L) surfaces using Smith and Knight tooth wear index [8] as shown below. The score for every individual was calculated as the worst score present in the mouth. Carious or restored teeth were excluded from the study. Finally, any abnormal dental

occlusal relationship or teeth mal-alignment was reported.

The data then tabulated and presented as frequency distribution and percentage. Chi- square test was used to test differences between groups at level of P<0.05.

**Smith and Knight tooth wear index:**

score 0	no loss of enamel surface characteristics on B,L,O,I and no change in contour on C
score 1	loss of enamel surface characteristics on B,L,O,I and minimal loss of contour on C
score 2	loss of enamel exposing dentine for less than 1/3 of surface on B,L,O,I and defect less than 1 mm deep on C
score 3	there was loss of enamel exposing dentine for more than 1/3 of the surface on B,L,O,I and defect 1-2 mm deep on C
Score 4	There were complete loss of enamel or pulp exposure on B,L,O,I and defect more than 2 mm deep on C.

**Results:**

There were 181 cases (36.2%) detected with no tooth wear (score 0), while 317 cases (63.4%) had tooth wear with minimal loss of enamel without exposing dentin (score1) and only two cases (0.4%) were found with exposed dentin (score2). There were no evidence of score3 or score 4 and no significant differences were seen between females and males (Table-1).

Concerning the risk and predisposing factors, it was found that 232 cases (72.73%) associated with occlusal problem like deep bite and edge to edge contact, 42 cases (13.17%) had different oral habit; 15cases had history of bruxism and the rest included other habits (chewing their nails and open bottles by teeth), 8 cases (2.5%) had history of

excess eating or drinking acidic fruits and soft drinks and lastly 37 cases (11.6%) had no predictable cause (Table-2).

This study show that the incisal edges were the most affected sites in both upper and lower anterior teeth, however, lower teeth were more frequently involved than upper counterpart. The followed affected surface was the occlusal. Some cases observed in this study had both incisal and occlusal surfaces affected simultaneously, so they were recorded as separate item in both surfaces as shown in figure-1.

**Table.1: The prevalence of tooth wear in college students in Sulaimani city.**

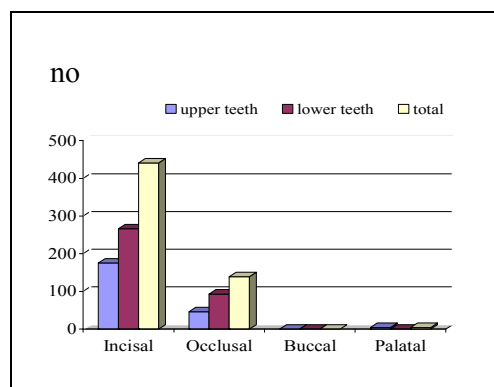
Score*	Male		Female		Total	
	No	%	No	%	No	%
0	73	40.33	108	59.67	181	36.2
1	135	42.59	182	57.41	317	63.4
2	0	0	2	100	2	0.4
Total	208	41.6	292	58.4	500	100

\*Smith and Knight tooth wear index

Note: there is no score 3 or 4 (zero cases)

**Table.2: Frequency distribution and percentage of the possible risk factors associated with tooth wear.**

Etiological factor	No	%
Occlusion	232	72.73
Habit	42	13.17
Erosion	8	2.5
No predictable cause	37	11.6
	319	100



**Figure.1: Frequency distribution of different tooth surface wear in upper and lower teeth.**

**Discussion:**

Indexes quantifying tooth wear process in different age groups (children, adolescents and adults) is varying and these indexes are not comparable[9]. In addition, selection criteria of study populations, sampling techniques and considered age groups differed. The prevalence of dental wear of different studies is therefore difficult and nearly impossible to compare.

This study indicates that most of tooth wear defects seen in 18-25 years college students were limited to enamel 63.4% (score1), this is in line with previous studies in adults from UK and adolescents from Malaysia [3,10,11], but greater than that observed in Sri Lankan adolescents (17-year-olds) 22% [12].

In contrast with the results of Milosevic et al in Liverpool [13] and Nother Borneo/ Malaysia [14] and Fares et al in London [15] in which they reported that all examined subjects had some degree of tooth wear. Yet, in our sample there were 181 cases (36.2%) that had no tooth wear.

Furthermore, this study showed that the proportion of subjects having exposing dentine was very low 0.4% (score2) compared to other studies in which exposing dentin contributed 95% among

16-year old secondary school children [10], and 14% in UK people with age range 18-60 years [3]. Recently it account 5.3% in 18-30 year-old students in London [15].

The selected sample of the present study did not show score3 (deep dentin) nor score4 (deep dentin with pulp exposure) and thus it support the fact that physiological rather than pathological tooth wear is more prevalent in old age people [16], since there is little evidence to support the concept that pathological levels of erosion or wear are age dependant, and there is, nevertheless, some evidence to suggest that normal levels of erosion or wear are age dependant [17]. Bartlett's study in adults from UK also showed that scores 3 and 4 combined were relatively uncommon [3]. And unlike the results of mixed dentition among (11-14) years old from different populations in which they revealed sever tooth loss, since they retain deciduous teeth [13,14,18].

The most frequent etiological factor reported in this study that cause tooth wear was the presence of occlusal problem (72.73%). This is similar to the result of Senzel et al [6] in which tooth wear was detected in 95% of disalignment tooth. On the other hand, erosion in our sample was found to be the lowest etiological factor (2.5%) This in contrast with other studies in 12 years old school children in South Brazil [19] and in adolescent from UK [20] in which tooth erosion contributed to 13% and 41% respectively.

While tooth wear related to bruxism in present study was lower than that detected by Saeed et al [21] among 5-14 year old in Baghdad city. This difference may relate to different psychological, neurological and voluntary control of habit of their younger age-grouped sample.

Considering the surface of the affected tooth, the incisal edges were the mostly affected surface, and it is in accordance with Saerah, et al findings [10]. considering the sex variation females had only slightly greater tooth wear than males this is in contrast to Fares et al were males had significantly more wear in dentine than the females [15].

#### **Conclusion:**

Tooth wear defect does not consider a major urgent problem at this age group, as most detected lose was limited to enamel only (63.4%, score1), and severe tooth lose was not detected. However, prevention and preservation of existing tooth structure is our goal, thus every dentist should not ignore to monitor, diagnose and prevent tooth wear in individual patients, especially when they perceive some unusual wear patterns. Concerning 18-25 years-old college students motivation is required to disrupt the suspected risk factors, like habits, friction, or stress beside treatment of the occlusal problem, and minimise the effect of excess acid intake. Follow up is required to prevent further tooth loss. Further studies are recommended to detect role of dietary habit and pH of the saliva on tooth wear defect.

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## بلاوی داخوړانی ددان له نیوان خویندکارانی کۆلیجی ته مه ن (18-25) سالاندا له شاری سلیمانی

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### پوخته

له دهستدانی پیکهاتهی ددانهکان به دهر له کلوری ددان به چوارم هوکاري پيوانهی مهترسیدار نه ژماره دهکریته له مهر جوانی، فه رمان و دریزدان به مانه وهی ددانهکان دواي زهبری تیژ، کلور بوون ونه حوشیهکانی دهوویهری ددانهکان. مه بهستی نه م توپژنه وهیه بو هه ئسه نگانندی بری بلاوی و ناماژمه ترسیدارهکانی داخوړانی ددانهکان له ته مه نهی نیوان (18-25) سالاندا له شاری سلیمانی. له م توپژینه وهیه دا ژماره گشتی (500) خویندکاری کۆلیجهکانی زانکۆی سلیمانی که ههرمهکی هه لبریزدراوون و پیشکینیان بو نه نجامدراوه بو داخوړانی ددانهکانیان. زانیاریهکان کۆکراونه ته وه پشبهستن به راپرسی ده ربارهی میژووی هوکارهکانی داخوړانی ددان، پشکینیی کلینکی نه نجامدراوو به به کارهینانی هیماي جوړی (Smith and Knight s index). ده ربارهی داخوړانی ددان بو تومارکرانی داخوړانی ددانکان له سه ر رووی هاره رهکان/ لیواری بره رهکان، روی گوی ورووی زمانی/ ملامشوی- ددانهکان جگه له خرینهکانی سی یه م. داخوړانی که م( ناستی 1) له ریژهی (%63.4) له خویندکارهکاندا بنران، به لام ته نها له (%0.4) داخوړان هه موو که گیشته بووه توپکل(عاج)ی ددانهکان. ریژهی (%36.2) له حزیندکارهکان هیج داخوړان نه بینرابوو. هیج نه بینرابوو له ناستی له( ناستی 3) و( ناستی 4) به نام نه وهی ره چاوکرا بوو که به ریژه (%75.51) له دان خورانی لیواری بره رهکانی ددانهکانی خواروو و سه روو که ریژه کهی له داخوړاندا له هه موو جیگاکانی تر زیاتر بوو. کیشه له ددان جوتووندا له هه موو نه وهوکارا بلاوانه بوو زیاتر بوو به ریژهی (%72.73) به تابه تی نه وانهی که جوتوونی ددانی قولیان هه بوو. که موکوری داخوړانی ددان له کومه نهی ته مه ن (8-25) سالاندا کیشهی وای دروست نه کرد بوو. هه روه ها له( ناستی 1) دا بریکی که م له داخوړانی توپژان( مینا)ی ددانهکان بیزابوو به ریژهی (%64.4) بوو که به هوکاري سه رهکی داده نریته بو کیشهی نادروست ددان جوتبوون.

## انتشار تاکل الاسنان لطلاب الجامعة الذین تتراوح اعمارهم بين (25-28) سنة لمدینة السلیمانیة

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### الخلاصة

فقدان الاسنان نتیجة التسوس يعد الخطر الرابع المهدد لجمالية و وظيفة و ادامة الاسنان بعد الصدمة العارضة و التسوس و امراض اللثة. الهدف من هذه الدراسة لتحديد انتشار و العوامل التي توءدي لتاكل الاسنان للاعمار بين 18-25 سنة في مدينة السلیمانیة. لقد اختیر 500 عينة عشوائية من طلاب الكليات لفحص التاكل السنني لديهم و لقد جمعت المعلومات باجراء الاسئلة عن العوامل المؤدية للتاكل و تم اجراء الفحص السريري باستخدام طريقة سمث و نايت للتاكل و تسجيل التاكل في السطوح العلوية، الامامية و الخلفية للقواطع و الاطراس و لقد استثنی من الدراسة اسنان العقل. التاكل الطفيف درجة 1 و جد في %63.4 من الطلاب بينما فقط %0.4 لديهم تاكل يمتد للعاج. و جد %36.2 من الطلاب ليس لديهم تاكل. و لم توجد اى حالة من الدرجة 3 و لا 4 من التاكل السنني. السطوح العليا للاسنان الامامية العليا و السفلى كانت اكثر السطوح اصابة %75.51. اكثر العوامل المؤدية للتاكل هي مشاكل الاطباق و جدت في %72.73 و خصوصا الاطباق العمیق. التاكل السنني لا يشكل مشكلة حرجة في هذا العمر لان اكثر الحالات سطحية تتضمن فقدان التاج %36.4. الناتجة عن مشاكل الاطباق.