

Original article

# Causes and Prevalence of Tooth Loss among Patients attending Dental Clinics in Gharian, Libya

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## ABSTRACT

The aim of this study was to investigate the prevalence, causes of tooth loss, and associated factors among the older adult population attending dental clinics in the city of Gharyan in Libya. A descriptive cross-sectional study conducted among adults who came to private clinics in the city of Gharyan in Libya. There were 160 patients participated in the study. Those that met the inclusion criteria had their data collected via self-administered questionnaires. Computer-assisted techniques used to examine the data (IPMSPSS). The results of the present study indicated that the major cause of tooth loss was dental caries (65.56%), followed by periodontal disease (11.88%), and more teeth loss was in the female than male and increased tooth loss with aging. In conclusion, there was a high prevalence of tooth loss. Females lost more teeth than males. Increased proportion of tooth loss seen in the elderly population.

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## INTRODUCTION

Tooth loss has recognized as a public health problem and used as an important measure of the oral health of a population. [1,2]. It is an important measure for assessing the standard, availability and utilization of both curative and preventive dental care in a given population [3]. The etiology of tooth loss is complex. It includes factors such as existing diseases, hygiene habits and use of dental clinics [1]. The major causes of tooth loss are periodontal disease and dental caries. Periodontal disease is more prevalent in the older age group while caries is associated with the younger age group [4, 5]. Other causes of tooth loss are trauma and orthodontic treatment. Tooth loss is associated with esthetic, functional, psychological and social impacts. The impacts of tooth loss include decreased functions of speech and mastication especially in the elderly [6,7]. It may affect their nutritional choices, their oral and ultimately systemic health and thereby diminish the quality of life [8]. It also decreases self-esteem and psychological status of individuals. [9, 10] Although many industrialized countries have experienced a dramatic reduction in the prevalence of edentulous and partial tooth loss [1], the proportion of edentulous individuals in aging societies worldwide continues to be significantly high. Epidemiological data on the incidence and prevalence of tooth loss vary considerably, making comparisons between countries difficult [2].

Retention of > 20 natural teeth has linked to a reasonable level of oral health [3]. In some African countries, [4,5] people retain a functional dentition of > 20 teeth even in old age, a phenomenon that is in marked contrast to the much more extensive tooth loss in industrialized countries [6,7]. The main causes of tooth loss include the sequelae of caries and periodontal disease, but other factors have also implicated [8-15]. Tooth loss has been associated with several sociodemographic, behavioral, or medical factors [16-23]. Once a sufficient number of teeth are missing, food choices

and nutritional changes could contribute to medical problems that might affect an individual's general well-being [24,25]. Tooth loss can also have a negative impact on emotions, and oral health [26]. The objectives from this study were to identify possible factors such as sociodemographic, chronic conditions, and how they are related to tooth loss.

## METHODS

### Study design

A descriptive cross-sectional study conducted among adults who came to private clinics in the city of Gharian in Libya to evaluate the causes and prevalence of tooth loss.

### Data collection

The data collected using an interviewer-administered questionnaire following verbal consent and an explanation of the study methods. The following categories made up the dependent variables: socio-demographic background, which included the subjects' age, gender, marital status, educational attainment, smoking status, and general health. Next, we used tactile and visual approaches to perform a clinical assessment for tooth loss. An examination tool that used on study participants was a dental mirror and probe.

### Statistical analysis

The collected data reviewed, and all statistical analyses performed using IBM SPSS [21]. Categorical data described in numbers and percentages, while continuous data presented as mean standard deviation and range (max and min). A chi-square test performed to investigate the association between the demographic data and the number of teeth missing. A P-value of <0.05 was considered significant.

## RESULTS

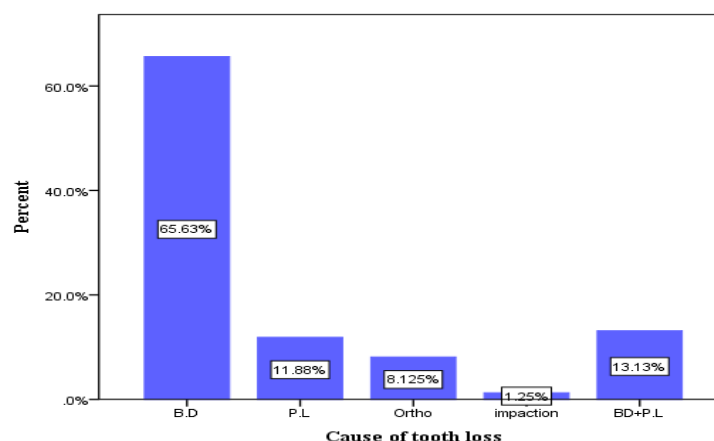
In the present study, 160 individuals selected as participants, 140 of them do not suffer from any health problem and only 12% of participants had diabetic disease. The age of the participants in this study ranged between 11 and 68 years. According to the gender, 44% were males and 56% were females.

Almost half of the participants in this study brush their teeth once a day, while only 25% of the participants use it twice or more, and the rest of them do not use a brush. Furthermore, 83% of individuals do not use dental floss. Table 1&2 present demographic and laboratory data of selected participants.

**Table 1. Mean and standard deviation of age and number of missing teeth for all participants**

Variables	Mean $\pm$ SD	Min	Max
Age (years)	38.74 $\pm$ 12.37	15	68
Missing teeth	5.48 $\pm$ 5.38	1	30

The average number of missing teeth for the participants was 5 teeth, and by listing the reasons that lead to the loss of teeth for the individuals in this study, BD was the most common reason (Figure 1).



**Figure 1. The Percentage of cause of tooth loss**

**Table 2. Frequency distribution of variables in all selected participants**

Variables		n	Percentage
Gender	Male	71	44%
	Female	89	56%
Status	Single	47	29%
	Married	103	65%
Education level	Divorced	10	06%
	Primary	15	09%
	Secondary	42	26%
Smoking	University	87	55%
	Postgraduate	16	10%
	Non smoker	112	70%
Tooth Brushing	Past smoker	08	05%
	Current smoker	40	25%
	No	38	24%
Dental Floss	less than twice	82	51%
	Two times or more	40	25%
Check Up	Yes	27	17%
	No	133	83%
Diabetic	Yes	50	31%
	No	110	69%
Other Medical problem	Yes	19	12%
	No	0	0%
Education level	Yes	141	88%
	No	20	%12
		140	%88

The findings showed that there was significant association between a number of tooth missing and study factors except smoking status.

**Table 3. Chi-Square test results for number of teeth missing and study factors**

Variables		Number of teeth missing			p-value
		1-3	4-10	11 and above	
Gender	Female	48	35	06	0.04
	Male	26	34	11	
Age	15-24 years	19	03	0	0.00
	25-35 years	35	15	01	
	36 and above	20	51	16	
Smoking	Non smoker	59	52	09	0.07
	smoker	15	17	08	
Tooth brushing	Yes	71	47	04	0.00
	No	03	22	13	
Dental floss	Yes	20	06	01	0.00
	No	54	63	16	
Check up	Yes	33	16	01	0.00
	No	41	53	16	
Diabetes	Yes	0	08	11	0.00
	No	74	61	06	
Medical problem	Yes	73	60	07	0.00
	No	01	09	10	

## DISCUSSION

The mean number of missing teeth was (5.48) (SD5.38), which was higher than the other studies in India that recorded (4.2) [41]. Dental caries is the most prevalent cause of tooth loss among all age groups and tooth types. The study's findings indicate that dental caries accounts for 65.6% of tooth loss, with periodontal disease coming in subsequent at 11.8%. These findings agree with previous researches [44-46,50]. According to a study conducted in Nigeria [42] periodontal disease is the primary cause of tooth loss. Compared to other research, periodontal disease [43] and caries were nearly equally significant causes of tooth loss. Overall, only 1.25 percent of extractions performed due to impaction, which is consistent with findings from previous Kayena studies [44]. Males had fewer missing teeth than female. This explained by most people seen in this study were female (56%) comparable than male (44%). In Tanzania study [50] female suffered more tooth loss and in India [41,47,48].

Every measure of tooth loss and retention correlates significantly with age, and the average number of missing teeth increases with age. According to a study, elderly individuals generally have poor oral health, including fewer teeth. This result has to be evaluated with caution since it contrasts a study conducted in Kenya [44] that found that between 21 and 30 years old, most people had teeth that were severely decayed, and a large percentage of tooth loss occurred in those aged 36 and older. People who visited a dentist more frequently had a significantly higher likelihood of having fewer teeth, according to the findings, which indicated a significant correlation between the number of missing teeth and a number of sociodemographic, behavioral, or medical factors. This finding may relate to problem-based attendance and requests for extraction patients, or it may be the influence of dentists [48].

There is a known association between the number of teeth and oral hygiene, so it makes reason that the regularity of dental hygiene practices, such as brushing your teeth and using dental floss, could have an impact on both oral hygiene and the number of teeth you had. Individuals who practice better dental hygiene experience less tooth loss [40,44]. According to this study results, oral health policy should prioritize preventative initiatives that involve dental hygiene education while focusing on risk factors that have identified. The results indicated that smokers had fewer missing teeth than non-smokers; however, this difference was statistically not significant (0.07), which contradicts the findings of other studies that have associated smoking, particularly the use of cigarettes, to tooth loss [41,45]. Some research indicates that tooth loss can also result from other causes, such as a failed root canal therapy or that requires the extraction of due to impacted teeth or for orthodontic treatment. Tooth loss is connected to a variety of factors, although it is unclear which ones—sociobehavioral or dental disease-related—are most significant [33,43].

## CONCLUSION

The results of this study indicated that carries and periodontal disease were the principal reasons for tooth extraction. The majority of patients were females had more tooth loss than males. Low education, level groups, age, were the associated sociodemographic risk variables linked to higher tooth loss. Oral hygiene and smoking are examples of related behavioral risk factors. The need for community-based oral health promotion and disease prevention programs with the goal of lowering the risk of tooth loss in this and related populations confirmed by the epidemiological data.

*Conflict of interest.* Nil

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## أسباب وانتشار فقدان الأسنان بين المرضى الذين يرتادون عيادات الأسنان في غريان، ليبيا

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### المستخلص

كان الهدف من هذه الدراسة هو التحقيق في انتشار وأسباب فقدان الأسنان والعوامل المرتبطة بها بين كبار السن الذين يرتادون عيادات الأسنان في مدينة غريان في ليبيا. أجريت دراسة وصفية مقطعية بين البالغين الذين جاءوا إلى العيادات الخاصة في مدينة غريان في ليبيا. شارك في الدراسة 160 مريضاً. تم جمع بيانات أولئك الذين استوفوا معايير الإدراج من خلال استبيانات ذاتية الإدارة. تم استخدام تقنيات بمساعدة الكمبيوتر لفحص البيانات (IPMSPSS). أشارت نتائج الدراسة الحالية إلى أن السبب الرئيسي لفقدان الأسنان كان تسوس الأسنان (65.56٪)، يليه مرض اللثة (11.88٪). وكان فقدان الأسنان أكثر لدى الإناث منه لدى الذكور وزيادة فقدان الأسنان مع تقدم العمر. في الختام، كان هناك انتشار كبير لفقدان الأسنان. فقدت الإناث أسناناً أكثر من الذكور. زادت نسبة فقدان الأسنان لدى كبار السن.

**الكلمات المفتاحية:** فقدان الأسنان، تسوس الأسنان، أمراض اللثة.