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Prevalence of Dental Caries and Associated factors Among The Military Persons in Assossa Military Camps, Benishangul -Gumuz, Region, Ethiopia

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PREVALENCE OF DENTAL CARIES AND ASSOCIATED FACTORS
AMONG THE MILITARY PERSONS IN ASSOSSA MILITARY CAMPS,
BENISHANGUL -GUMUZ, REGION, ETHIOPIA

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BAHIR DAR UNIVERSITY
COLLEGE OF MEDICINE AND HEALTH SCIENCE
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Acronyms and Abbreviations

BCC	Behavior Changing Communication
CI	Confidence Interval
DMFT	Decayed, Missing and Filled permanent Teeth
DOD	Departments of Defense
KM	Kilometer
OR	Odds Ratio
PVT	Private Soldier
WHO	World Health Organization

Abstract

Background: Currently dental caries, one of the most common important global oral health problems affecting a large segment of worlds' population. It is the destruction of dental hard a cellular tissue by acidic by-products from the bacterial fermentation of dietary carbohydrates, especially sucrose

Objective: To assess the prevalence of dental caries and associated factors of among the military persons in Assosa military camps, Western Ethiopia.

Methods: An institution based cross sectional study was conducted from July 15/ 2018 to August 15 2018. a total of 423 military persons were selected using a simple random sampling method. Data were collected using a structured and interviewer administered questionnaire. Dental examination was carried out for all selected study subjects by trained dental professionals or dental therapists using world health organization (WHO) dental caries diagnosis guideline. first data were collected, entered in to computer using EPI data version 3.1 then, the data were exported to the SPSS version 23 for further cleaning and analysis. Various summary statistics were computed to describe the study variables and presented using frequency tables. Bivariate and multivariable logistic regression analysis was carried out to identify factors associated with the dental caries. Variables having a p-value of less than 0.2 in the bivariate analysis were entered to the multivariable logistic regression analysis to control the confounding effects during the analysis. The association between variables was described using the odds ratio at 95% CI and p-value <0.05

Result: A total of 423 study participants were included in the study with 100 % response rate. Majority of the participants (89.4%) were males. The mean (SD) age of the respondents was 28±(1.6) (rage 18—52), (26.5%) were cigarettes smokers. More than half (61%) study participant were alcohol drinkers. The prevalence of dental caries among the military persons was found to be 59.1 % (CI: 53.9%--63.9%). The mean DMFT was 1.66. Person who used fluoridated tooth paste had less caries than those who used none fluoridated tooth paste. Cigarette smokers (AOR=1.64 95%CL: 1.01-2.67), had information about dental caries (AOR=1.94 95%CL: 1.27--2.97) frequency of brushing (AOR= 0.45, 95%CL: 0.24-0.81) were statistically significant factors of dental caries in study area.

Conclusion and recommendation:

Based on this study, nearly two third of the participants have developed dental caries. Similarly, large number of military persons had risk personal behaviors that could expose them develop dental caries. Cigarette smoking, heard about dental caries, and frequency of brushing habit were positively associated factors to the dental caries in the study area Therefore, regular awareness creation on health impact of behaviors/life /lifestyles using different strategies such as health education, conference, peer education, availing information sources needs to be implemented.

1 Introduction

1.1 background

Currently dental caries, one of the most common important global oral health problems affecting a large segment of worlds' population(1).It is the destruction of dental hard a cellular tissue by acidic by-products from the bacterial fermentation of dietary carbohydrates, especially sucrose(1). It progresses slowly in most of the people which results from an ecological imbalance in the equilibrium between tooth minerals and oral biofilms which is characterized by microbial activity, resulting in fluctuations in plaque pH due to bacterial acid production, buffering action from saliva and the surrounding tooth structure. The microbial community of caries is diverse and contains many facultative and obligate anaerobic bacteria. Dental caries can affect the human in various ways i.e. presence of tooth pain and infection can limit the necessary ingestion of energetic foods, affecting the growth in children and adults as well as their learning, communication skills and recreational activities(2).

Untreated dental caries was the most prevent condition, although the prevalence of dental caries in low – income countries has been high compared to high –income countries, recent studies of dental caries prevalence in sub-Saharan Africa are limited among the military persons(3)

The prevalence and incidence of dental caries is influenced by a number of, age, sex, ethnic group, dietary patterns and oral hygiene practice (4).

Oral health is an essential part of achieving and maintaining readiness to deploy and fight. The dental health of the military personnel has a significant impact on military operations since the untreated oral conditions can result in increased rates of disease and non-battle injury for deployed soldiers (6).Military dental service is to maintain the dental health of the military personnel at an optimum level to ensure their operational readiness. In addition, personnel dental wellness and readiness are important not only for immediate deployment but also for the well-being during non deployment (5).

Dental caries is increasing gradually due to the growing consumption of sugary substances ,alcohol, substance abuse , cigarette smoking ,poor oral care practices and inadequate health service utilization. Dental caries result from dental plaque or bacteria present in and around the teeth for long time. The frequent intake of sweets, dry mouth and poor oral hygiene increases the chances for cavities. Throughout the losing teeth is seen by many people as natural consequences of aging while in some industrialized countries there is a positive trend of reduction in tooth loss among adults in recent years. In many developing countries access to oral health service is limited and teeth are often left untreated or are extracted because of pains or discomfort (6).

1.2 Statement Problem

Professional soldiers are at high risk of developing pathological conditions in the oral cavity as a result of difficult psychological, physical, and environmental conditions during military exercises in peace time but especially during war report showed that “participation in war and the time spent in war has a significant influence on the increased prevalence and severity of periodontal disease and tooth decay, as well as on the changes in dental behavior (7).

A dental problem is one of major health problems of the deployed military personnel worldwide (8). The oral diseases include dental caries and gum diseases that cannot heal by themselves but require treatment to halt the progression of the diseases. However, most of the initial oral lesions usually have no apparent signs and symptoms, which easily resulting neglecting dental care and are thus the reasons for the development of more severe conditions that lead to pain, suffering, insomnia, no attentiveness to work, infections of the oral cavity and face (8).

In developing countries, until recent year the level of dental caries found to be lower, but currently the trend has been changed due to increase consumption of sugars and inadequate exposure to fluoride (9).

Oral health conditions a public health problem in developing countries by, affecting vast majority of the population of any socio economic group particularly the adult population which may be related to the poor personal hygienic behaviors, substance abuse and increased consumption of processed food (9).The impact of dental caries includes oral pain which may affect speech, eating, sleeping, Swallowing and breathing. The problem can lead to low self-esteem and underline social acceptance (9).

In most low and middle income countries, the general population does not benefit from systematic oral health care, nor have preventive programs been established. In some countries the incidence of dental caries has increased over recent years and may further increase as a result of growing consumption of sugar and poor oral hygiene practice and inadequate health service (9).

In Malawi, the hospital based data from health management information system (HMIS) suggests that oral health problems are the sixth commonest cause for outpatient department attendance 3.3%(11).based on study findings from Addis Ababa Ethiopia untreated oral health problems can cause serious disruption in everyday life of the affected individuals and society, it can affect the physical, psychological, school performance, work achievement and economic general (10). The impact of the poor oral health will become serious among the military persons since their stand is directly related to the sovereignty of the country and peaceful moment of the population. The presence of high dental caries prevalence due to poor personal behavior, life style, personal hygiene and information shortage is bad news on the quality and personality of militaries with high duty (10).

Military personnel measures for preventing action taken dental caries receive little attention, and frequent management for tooth ache was tooth extraction. Absence of to the minimum standards of having six opposing teeth was a leading cause of unfit from military service. as far as western command is concerned there is limited information in magnitude of dental carries and associated factors among military persons. Thus, this study is aimed at assessing the prevalence and associated factors of dental caries among the military persons in Assosa zone, Western Ethiopia. is important to design appropriate intervention.

1.3 literature review

1.3.1 Magnitude of Dental Caries

A survey conducted to assess dental caries experience among Malaysia Territory Army Personnel , prevalence of dental caries was very high 97.2%, DMFT 8.15, untreated decayed teeth was 3.67% and missing teeth 2.90% (11).

Cross sectional study conducted in Jordanian Pakistan ,2013,The prevalence of dental caries Jordanian joint special military personnel was high (83.1%) while the DMFT ranged from 0 to 32. 65.5% of the participants claimed that they brushed their teeth once a day and 60% twice daily. Only 22.9% of the participants were regular attendees, Bleeding on probing was observed in 21-24 years old (51.1%) as well as among 18-20 years old (44.2%). However, there was statistically a significant difference between dental caries and periodontal indexes as 49% had dental caries and score 2 periodontal indexes, while 25.% were caries free and showed normal periodontal condition, however, participant who had score 3 periodontal index's 10.3% got caries. The present study found that military personnel had a relatively high rate of dental caries are oral hygiene and oral health was poor (5).

A cross sectional study form Saudi in 2014showed that adults with a mean age between 30 and 45 years had maximum caries prevalence of 98% and DMFT of 14.53 while older individuals had greatest DMFT score of 24.3. Children, adults, and elderly populations demonstrate a higher prevalence and greater severity of caries, and secular trends also show a striking increase in DMFT and caries prevalence rates over the past few decades in Saudi Arabia (12).

A cross sectional study conducted in Nigeria rural community 2011indicated 35.5% dental caries prevalence. The frequency of tooth brushing habit was 15%, twice a day,76% once a day and occasionally 9 %. The Materials used for tooth cleaning include, 65%tooth brush and paste, 35%chewing stick (13).

Based on a retrospective study conducted on dental visits at Rwandan, 2016, Level 2 hospital Bria in Central African Republic total of 540 dental visits aged from 22 to 59years. Dental caries, gingivitis and periodontitis were more prevalent with 33.13%, 16.98% and 13.87% respectively (14).

Based on a cross-sectional oral health survey among Sudanese adults in 2012, the prevalence of tooth loss (missing at least one tooth) was 78 %; 66.9 % of tooth loss was due to caries, and 11.2 % was attributable to other reasons. Prosthetic replacement of missing teeth was evident in 3 %, whereas a need for prosthetic replacement was evident in 57 %.(15).

A community based cross sectional study from Addis Ababa in 2014, revealed 47.4% dental caries prevalence (6).

A cross sectional study conducted in Finote Selam town among two hundred ninety one students revealed that (48.5%) of the students had dental caries. The mean Decayed, Missed and Filled Tooth (DMFT) was 1.23. The prevalence was higher in females (54.6%) (2).

Case-control study conducted in Dessie Ethiopia in 2005, among 642 army personnel. Prevalence of dental caries among the study participants was 85%. Comparison of life style characteristics and dietary pattern between cases and their controls were made crudely ;there was no significant difference between cases and controls based on differences in their staple diet and consumption of alcohol ,but there was a difference between cases and controls with regards to khat chewing and cigarette smoking habits: The khat chewing habits was higher among cases of dental caries than among controls, The cigarette smoking 185(57.6%)was higher among cases as compared to controls groups and alcohol drinking habit 55(17.1%) and oral hygiene practice 182(57%)and tooth brush not used 93(29.2%)(16).

Comparisons of cases and control for presence of calculus, plaque and gingivitis Among the study subjects, 145 (45.2 %) of cases, and 85 (26.5 %) of controls have calculus, and this difference was significant .The the detected gingivitis was higher among cases as compared to controls The likely of having plaque among the cases was higher than the controls(16).

A cross-sectional study was conducted among central command army members in North-western Tigray Ethiopia in 2011, gave a prevalence of 80% dental caries. (17).

Among the study participants 53(16.8%) had khat chewing habit, 87(27.7%) had cigarettes smoking habit. Three third of the study subjects were drinking alcohols. Out of the participants 294(93.4%) and 213(67.4%) were taking tea and coffee with sugar respectively. Of the study subjects 183(57.9%) were take soft drink one bottle and above weekly. Almost all participants 311(98.4%) were take bread as major staple food. Out of 316 study participants 312(98.7%) clean their teeth regularly. 43% once a day

and 11.4% twice a day. Material used for tooth cleaning were 208(65.8%) chewing stick and the remaining were used collegate and piece of the cloth (17).

1.3.2 Factors Associated with dental caries

1.3.2.1 Socio-demographic factors

Having <20 teeth was associated with age, gender, and socioeconomic status; tooth loss due to caries was associated with age, tribe, frequency of tooth-brushing, and a low rate of dental consultation. Tooth loss due toothier reasons was associated with age, tribe, education, periodontal pocketing, tobacco use, tooth wear, and prosthetic status (13).

Based on a cross sectional study conducted among adults in Marion County, Indiana, USA in 2009, An Orodental disease was accounted for about 61.6% prevalence. The number of dental visits significantly correlated with age, sex, race, and income (18).

1.3.2.2 Environmental factors

Fluoride exists naturally in nearly all water supplies. Water is “fluoridated” when a public water system adjusts the fluoride to a level that is optimal for preventing tooth decay. 1 7-4.6 percent of Americans whose homes are connected to public water systems receive fluoridated water. However, more than 72 million Americans do not have access to drinking water that is fluoridated to prevent decay (19).

Replacement of missing teeth was uncommon in the study subjects, which may reflect lack of access to this type of oral healthcare (13).

1.3.2.3 Behavioral factors

Almost every one 98.2% claimed they brushed their teeth at least once daily and 80% used fluoridated tooth paste. However, every few participants used dental floss (11.3%), while majority (60.2%) did not know about flossing. More than 70% were current smokers, only 13.7% regular attendees, with the majority 86.6% visiting the dentist only when they had dental problem(11).

59.3% of the participants were smokers. About 71.4% of participants had calculus at age of 35-39 years, while 52.3% calculus was seen in 25-29 years old (5).

Sweets intake, tooth cleaning, poor oral hygiene and being from a poor household were significantly associated with having dental caries. The prevalence of periodontal disease was 35.4% and it was associated with: having a mother with low education level, and poor oral hygiene. The prevalence of bad mouth odor was 4.4% and oral trauma 2.1 % (5).

The cross sectional study done in Uganda district in 2015, Overall mean DMFT score was 0.73 for children and 4.71 for adults. Generally, there was a higher mean DMFT score in the rural (2.19) compared to urban areas (1.97). In all the districts, except Hoima, there was a higher mean DMFT score

of children in rural compared to urban. In adults, similar trend was mainly registered in Masaka, Hoima and Gulu districts. Most participants (79.9%, n=1309) occasionally ate sugared snacks. Overall, 95% (n=1795) of the participants cleaned their teeth with plastic tooth brushes (71.7%) and chewing sticks (8.3%) (19).

Lack of tooth brushing habit, frequent consumption of sugared foods and residency were found to have significant association with dental caries (1).

Risk factors with dental caries were statistically significant in those who taking soft drinks and getting lower monthly compare with those paid higher salary (17).

Dental caries is widely recognized as an infectious disease induced by diet. Cariogenic bacteria, fermentable carbohydrates and susceptible tooth and host are the main players in the etiology of caries. Caries risk is greatest if sugars are consumed at high frequency and are in a form that is retained in the mouth for long period (18).

Dental plaque is the etiological agent of dental caries. Small amount of plaque is not always apparent solely by visual examination and it is necessary to turn a probe around the gingival margin to enable trace amounts to be visualized (20).

Figure.1

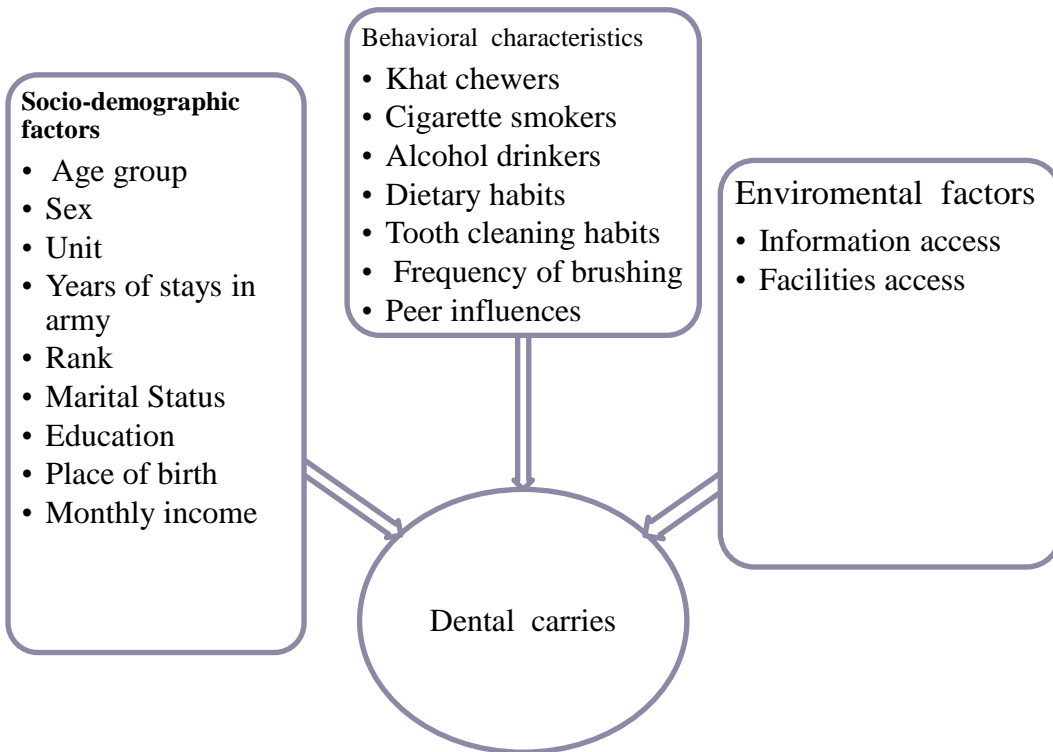


Figure: Conceptual framework showing list of variables from various literatures about dental caries among the military persons in Assosa zone, Western Ethiopia (16, 17).

1.5 Justification of the Study

Dental caries is the emerging and prevalent public health problem in developing country including Ethiopia. In military oral health studies are few and all showed that dental caries are public health problems at large.

As far as western command health department is concerned there is limited of information on magnitude and associated factors dental caries among military persons.

Hence, assessing the magnitude of dental caries among military persons provides on evidence for intervention in tackling the problem, on magnitude and associated factors on dental caries among military persons to be used an input for program planner to design intervention to tackle dental caries among military persons. More over was also being important to the researchers who are interested in the topic to conduct a large scale study.

Objective

2.1 General objective

To assess the prevalence of dental caries and associated factors among the military person in Assossa military camps, Benishangul-Gumuz, Region, Ethiopia, 2018.

2.2 Specific objective

- To determine the prevalence of dental caries among the military persons in Assossa military camps, Benishangul-Gumuz, Region, Ethiopia.
- To identify factors associated with dental caries among the military persons in Assossa military camps, Benishangul-Gumuz, Region, Ethiopia.

Method

3.1 Study Design and Period

An institution based cross sectional study was conducted from July 15 /2018 to August 15/ 2018.

3.2 study area

The study was conducted in Assossa zone, Benishangul-Gumuz regional state. Assossa Zone was found about 661 km away from Addis Ababa a capital city of Ethiopia. In addition to western command, the command had four sub division arranged within four departments, Infantry division, battalions, and mechanized division. Within the western command there was one level 3 referral hospital, had each division level 2 hospital and there was a health station in each battalion for minor curative and preventive health services. There were about 122 health professionals with different departments serving.

3.3 source population

All members of the army living in Assosa military camps during data collection time were source populations to this study

3.4 study population

The study populations all army members of the 12nd Division and fulfilling the inclusion criteria.

3.5 inclusion criteria

All soldiers who lived in the selected Division of study area

3.5.1. Exclusion criteria

Those soldiers who lost their tooth during war/fighting were excluded from study

3.6 sample size determination

3.6.1 for objective One

The sample size was determined by using a single proportion formula using the following assumption the following formula. A 95% confidence interval, 80% proportion (prevalence of dental caries of army) to calculate sample size (20) 4% precision error, and 10% non response rate.

$$n = \frac{z^2 \cdot p \cdot (1-p)}{d^2}$$

P= the proportion of which is 0.80

d= margin of error 0.04

Z =value which is % 1.96 for 95% CI

$$\frac{(1.96)^2 \times 0.80(1-0.80)}{0.04^2} = 384 \quad \text{Adding value 10\% non response rate the total sample sizes } 384 + 10\% = 423$$

3.6.2 for objective 2

A double proportion formula was used and computed using epiInfo version to calculate sample size based on the odds ratio of factors from the previous studies. by selecting few factors with larger odds ratio and calculating the sample size and compare it with the sample size for objective one. Then, decide with the larger sample size.

Objective	Factor variables	P	Q	CL %	Sample Size	Non response	Total sample size
Objective one	Single proportion	0.80	0.20	96	384	39	423
Objective Two	Alcohol drinking	0.171	0.829	95	218	29	247
Objective Two	Tooth brush not use	0.292	0.708	95	318	32	350
Objective Two	Cigar rate smoking	0.576	0.424	95	375	38	413
Objective Two	Use soft drink	0.579	0.421	95	374	38	412
Objective Two	Oral hygiene practice	0.57	0.43	95	353	36	389

3.7 sampling techniques

Simple random sampling technique was used to select the study participants. form sampling frame in each selected battalion.

3.8 study variables

3.8.1 Dependent variables

- Dental Caries:- Yes/No

3.8.2 Independent variables

- 1) Socio-demographic variables: age, sex, religion, ethnicity, education level, monthly income
- 2) Behavioral factors: smoking, alcohol drinking, khat chewing, knowledge on dental caries, teeth cleaning practices, dietary habits and peer influences,
- 3) Environmental factors: information access, health facility access

3.9 operational definitions

Knowledgeable and non Knowledgeable: - Knowledge on oral health was assessed by nine knowledge questions. The overall knowledge was obtained by adding scores of nine knowledge questions. Those, who answered five out of nine knowledge questions, were labeled as knowledgeable.

Clinical caries: - is defined as a cavity diagnosed by visual examination/probing of the mouth.

Past caries: - past caries is manifested either by a filling or by loss of the tooth due to dental caries.

DMF: - index per person: it is the average number of permanent teeth per person which are decayed, (D), missing (M), filled (F) because of caries it is quantitative expiration the life time caries of expiration an individual.

A participant in this study was said to have tooth decay; if it is proven by clinician based on the WHO guideline for dental caries.

3.10 Data Collection Tool and Techniques

A structured interviewer administered questionnaire was used to collect socio demographic characteristics, behavioral, dietary habit health problems, oral care practices related variables. The questionnaire was first prepared in English by referring related literatures and then translated in to Amharic (local language) and back to English for its consistency. The questionnaire was pre-tested among military personnel from air force unit which is similar setup .before the data collection process and necessary amendments were made. Dental examination was carried out for all selected study subjects dental therapists used (WHO) dental diagnosis guideline.

3.11 Data quality assurance

Pretesting of questionnaire, conducting training to data collectors, conducting supportive supervision, by principal investigator, checking data completeness and consistency, used the WHO guideline to identify dental caries/cases/,data edition, and checking model fitness were some data quality assurance activities.

3.12 Data Processing and Analysis

First data were collected, entered in to computer using EPI data version 3.1 then; the data were exported to the SPSS version 23 further cleaning and analysis. Various summary statistics were computed to

describe the study variables and presented using frequency tables. Bivariate and multivariable logistic regression analysis was carried out to identify factors associated with the dental caries. Variables having a p-value of less than 0.2 in the bivariate analysis were entered to the multivariable logistic regression analysis to control the confounding effects during the analysis. The association between variables was described using the odds ratio at 95% CI and p-value <0.05

3.13 Ethical consideration

Ethical clearance was obtained from the ethical review committee of College of Medicine and Health Sciences, Bahir Dar University. Supporting letters were obtained from Regional Health Bureau and military office after clear description on the study objectives, data collection procedures and data confidentiality issue. A written consent was obtained from each study participant before actual interview and dental examinations. The participation was fully voluntary based. Upon completion of dental examination and the interview, health education about dental caries was given to the study subjects and those with dental caries were given appropriate treatment.

4. Result

4.1 Socio Demographic Characteristics of Study Subjects.

A total of 423 army personnel were included in our study with 100 % response rate. The majority of the participants (89.4%) were males. The mean age of the respondents was $28 \pm (1.6)$ years (range 18—52). Marital status of the participant (38.3%) were single, (56.5%) married, divorced (3.8%), widowed (1.4%). Educational background level were primary school (26.8%), secondary school (51.5%), preparatory (8.7%), (13%) were diploma and above.

Table 1 Socio-demographic characteristics of military persons in Assosa military camps, Western Ethiopia, 2018, (N=423) (Table1).

Variables		Number	Percent
Age category	<=24	229	54.2
	25-29	81	19.2
	30-34	42	9.9
	35-39	42	9.9
	>=40	29	6.8
Sex	Male	378	89.4
	Female	45	10.6
Unit	Regiment	94	22.2
	Infantry	156	36.9
	Staff	173	40.9
Years of stay in army	<=10	264	62.4
	>10	159	37.6
Military rank	Pvt	88	20.8
	Corporal	157	37.1
	Sergeant	71	16.8
	Lieutenant	49	11.6
	Captain	43	10.2
	Above major	15	3.5
Marital status	Single	162	38.3
	Married	239	56.5
	Divorced	16	3.8
	Widowed	6	1.4
Educational status	primary school	113	26.8
	Secondary school	218	51.5
	Preparatory	37	8.7
	College and Above	55	13.0
Place of birth	Bahair Dar	86	20.3
	Mekele	72	17.0
	Hawassa	45	10.6
	Natherehte	28	6.6
	Zewaye	102	24.2
	Shashmene	70	16.6
	Other	20	4.7
	Monthly wage in Ethiopian Birr	<=2000	94
	2001-3000	229	37.6
	>3000	100	16.5

4.2. Life style characteristics

Among the military persons, (22%) were khat chewers, and (26.5%) were cigarettes smokers. More than half (61%) of the respondents were alcohol drinkers. Almost all study participants (9%) have taken bread as major staple food (Table2).

Table 2 Life style related characteristics of military persons in Assosa, military camps, Western Ethiopia 2018, (n=423)

Variables		Number	Percent
Khat chewer	Yes	93	22
	No	330	78.0
Cigarette smokers	Yes	112	26.5
	No	311	73.5
Alcohol drinkers	Yes	258	61
	No	165	39.0
Type of usual food for breakfast	Bread	403	95.3.
	Pasta	20	4.7
taking milk	Yes	17	4.0
	No	406	96.0
Type of usual food for lunch	Bread and meat	2	.5
	Injera and meat	1	.2
	Injeraandvegetables	104	24.6
	breadandshiroorkik	235	55.6
	Injeraandshiroorkik	81	19.1
Type of usual food for dinner	Injera and meat	3	.7
	breadandshiroorkik	311	73.5
	Injeraandshiroorkik	109	25.8
Taking tea with sugar	Yes	375	88.7
	No	48	11.3
Taking coffee with sugar	Yes	338	79.9
	No	85	20.1
Taking Soft drinks	Yes	295	69.7
	No	128	30.3
	Total	423	100.0
Taking sweet food staff	Yes	60	14.2
	No	363	85.8

4.3. Knowledge and Preventive Practices on Oral Health and Dental Caries

Among the interviewed military persons, (37.6%) responded as they had knowhow about dental caries of which, (21.2%) got information from health professional, (5.7%) from their colleague (9.5%) from mass media, the rest (1.2%) got from other sources. Out of total 423 military persons (92.2%) had a practice of cleaning their teeth using various mechanisms such as 147 (37.5%) using chewing stick, (60.9%) by tooth brush and paste and (1.8) using a piece of clean cloth. The mean DMFT in this study is 1.66(Table3).

Table 3. Knowledge of military persons on oral health and dental caries in Assosa zone, Western Ethiopia, 2018 (n=423)

Variables		Number	Percent
Have you ever heard about dental caries (N=423)	Yes	159	37.6
	No	264	62.4
Where did you get the information (N=354)	From mass media	40	9.5
	From health professional	90	21.2
	From calques	24	5.7
	Other	5	1.2
	where did you go to alleviate tooth (N=354)	To health institution	213
Number of permanent teeth lost	To private pharmacy	22	5.2
	To traditional healer	16	3.8
	1	85	56.7
	2	47	31.3
	3	11	7.3
Do you usually clean your teeth	4	7	4.7
	Yes	392	92.7
	No	31	7.3
Material using for tooth cleansing	Chewing stick	147	37.5
	Piece of clean cloth	7	1.8
	Tooth brush with paste	238	60.7
Do you have tooth brush and paste	Yes	320	75.6
	No	103	24.3
Frequency of brushing	Twice a day	103	25.3
	Once a day	135	31.9
	Every other day	27	6.4
	Occasionally	55	13.0
If answer for above question is No, Why?	I don't know the advantage	20	5.4
	It may cause bad smell	70	16.5
	I could not afford	10	2.3
	Other specify	3	.7
Knowledge question	Knowledgeable	325	76.9
	Unknowledgeable	98	23.1

Dental caries	Decayed tooth	75	17.7
	Missing tooth	150	35.5
	Filled tooth	25	5.9
Total	DMFT	250	59.1

4.5. Factors of dental caries

To identify the factors associated with the development of dental caries, bivariate and multivariable logistic regression was computed. In the bivariate logistic regression analysis, sex, cigarette smoking habit, heard about dental caries information, tooth cleaning habit and frequency tooth cleaning showed a statistically significant association with the dental caries. However, the multivariable logistic regression analysis, cigarette smoking, having information about dental caries, and frequency of tooth cleaning showed statistically significant associated with the dental caries.

Those military persons who did not hear about dental caries were 2 times more likely to develop dental caries (AOR=1.94 95% CI= (1.27—2.97) compared to those who heard about the dental caries, Military persons who had cleaned their teeth twice a day were 55 %.(AOR=0.4595% CI=0.24-0.81) less likely to develop dental caries compared to those who did occasionally. Moreover, smoker military persons were found to be 1.64 times more likely to develop dental caries as compared to the none smoking counter parts (Tbale4).

Table 4. Factors associated with the dental caries among military person in Assosa, Western Ethiopia, 2018 (n=423).

Variables	Response	Tooth decay		COR (95% CL)	AOR(95% CI)	P-Value
		Yes	No			
Sex	Male	163	215	2.65(1.275,5.1)	1	0.001
	Female	10	35			
tooth cleaning habit	Yes	25	6	3.09(1.24,7.0)	1	0.01
	No	225	167			
Smoking	Yes	139	172	1.85(1.17-2.93)	1.64(1.022,2.67)**	0.001
	No	34	78			
Heard about dental Caries	yes	172	92	1.94(1.3,2.89)	1.94(1.27,2.97)**	0.002
	No	78	81			
Frequency of tooth cleaning	Twice a day	35	64	0.36(0.21,0.4)	0.450(0.24,0.8)**	0.008
	No	64	43			

** significantly associated with dental caries after adjusted for cigarette smoking, heard about dental caries and frequency of tooth brushing.

5. Discussion

In this study the prevalence of dental caries was 59.1%. This is consistent with the WHO report that noted the rate of DMFT is consider able higher in low income countries than in high-income nation the accessibility, available tooth brush and paste, dental technician and limited number of treatment, awareness level, low compared to high income nation(3).

However, the current prevalence is lower compared to prevalence of dental caries from Pakistan 83 %(5 Malaysian92.2 %(11) and central command army 80% (17). The possible explanation for this variation could be the majority of the respondents in this study had good oral hygienic practice and used tooth brush and paste, which were less practiced by the former studies. .In addition, variation could be in Asia country increasing growing consumption sugar, inadequate exposure to fluorides and limited access to oral health service (9).

On the other hand the proportion of dental caries in the current study was higher compared to study findings from Nigeria where the prevalence of dental caries was 35.5% (13). This variation might be due to difference personal behaviour, information access, and follow up from managers, working setups, knowledge, attitude and practice of soldiers. The variation practice of these conditions might lead to the variation in the prevalence of tooth decays since they were mentioned as risk factors to tooth decay by various literatures (13).

In this study the participant missing teeth (tooth loss) were 35.5 % similar to Nigeria who had missing teeth was 33.6 %. The possible explanation could be both hygiene practice was low.

In this study the participant smoking cigarette were 26.5% difference to Pakistan who had smoking cigarette was 59.3 % the possible explanation could oral hygiene practice was good in this study.

In this study the participant smoking cigarette were 26.5% difference to Malaysia army who had smoking cigarette was 70 %. Possible explanation those who had smoked high cigarette indirectly associated with dental carries. The impact of this lead declaration of teeth, white parts enamel surface became black prevalence of cigarette smoking, arguably the strongest risk factor peridontitis disease. In addition to knowledge, life style and behavioral characteristics of respondent had also contribution risk to develop dental carries.

In this study the participant claimed that they brushed their teeth once a day 32% difference to Nigeria rural community 76%.the possible explanation frequency and time of cleaning has its own impact. Nigeria rural community respond ants brushed once daily was high compared to study, therefore the more frequent brushing is performed the less caries experiences but it is not sufficient to protect the prevalence of dental caries.

The habit of frequency of cleaning the teeth was found to be significantly associated with dental caries. Teeth cleaning have a protective effect as many studies agreed (6).but the frequency and method of cleaning has its own impact and contribution. This Study showed that the frequency tooth brushing habit with pastes twice a day is effective protective for dental caries. The possible explanation for this finding could be that tooth paste to be effective. It depends on frequency of using tooth paste. The more frequent tooth brushing lower chance of having dental caries. In addition to proper oral hygiene could indicate a better attitude towards oral health (6).

In this study, those who did cigarette smoking risk developed the risk of dental caries compared to those who didn't smoke cigarette. The possible explanation this finding could be poor oral hygiene practice made by respondents who smoked cigarette. most of the time those who smocked cigarette neglected oral hygienic practice result, strongest risk factor peridontitis disease.

The mean DMFT in this study is 1.66 which is relatively comparable with the previous study done similar to in Finote Selam town which was 1.23(2).prevalence of DMFT was low compared to from WHO standard < 3 DMFT. But both study still high risk prevalence of dental carries. It also decayed, missing and filled teeth were considered as adverse outcomes.

Molar decayed and premolars were the most frequently affected teeth by dental caries. The reason could be majority of the food was grinded with these teeth and both of them have very large surface area in which the food particles accumulated and harbor micro- organisms to proliferate. As a result, these acid producing bacteria might affect the enamel of the teeth which later went into decayed teeth.

On the other hand the canines and incisors had the lowest decayed percentage among the four types of teeth. This could be explained by the fact that both of them are protected from direct exposure to acidic food by the tongue and less chance chewing food materials, also they are close to the sublingual salivary gland duct. Where it helps in diluting the acidic environment around the lower incisors.

6. Limitation of the Study

- Lack of adequate literature on the army personnel and using the study findings among the general population may affect the quality of the discussion section.
- Using only quantitative study will have limitation on identifying the potential factors to the dental caries in the study.

7. Conclusion and Recommendation

7.1 Conclusion

Based on this study, significant numbers of military persons, nearly two third, have developed dental caries. Similarly, large number of military persons had risk personal behaviors that could expose them develop dental caries. Cigarette smoking, heard about dental caries, and frequency of brushing habit were statistically significant factors to the dental caries in the study area

7.2 Recommendations

- ❖ Western command had responsible for Promotion good oral hygiene practice through continuous health education using varies strategies and techniques are better to prevent the problem.
- ❖ Western command health department reformed all professional to did early detection and treatment of newly developed dental caries in all level in army unit.
- ❖ Defense main health department and Western command health department responsible should support with resource tooth brush and paste materials, availability, and accessibility with faire price at all military unit's level.
- ❖ Western command health department need to arranging supportive supervision a regular program for inspection of the oral cleanness of the militaries and as the same time to encourage them to practices oral hygiene.
- ❖ Regular awareness creation on health impact of bad behaviors/life styles using different strategies such as health education, conference, peer education, availing information sources (brushers, news, TV services, Journals, book, audios, videos, library services, and health clubs) is vital to solve the problem.
- ❖ In addition, there should be hospital or health center services for prevention, early screening and management of dental carries.
- ❖ Assosa Regional health bureau, zonal health office, hospital and health centers staff had responsible for promotion good oral hygiene practice through continuous health education using varies strategies and techniques are better to prevent problem.

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9. Appendix i: consent form English questionnaire

Introduction

Hello. My name is _____ and I am from Joint MPH program Bahir Dar University college medicine and health sciences

Informed consent; A survey about prevalence of dental disease in military members is being conducted here. A number of respondents including you have been selected to be part of this study. We would like to know ask you some questions concerning your dental health status.

There will not be direct benefits, but we shall answer any questions you have about this subject and advise you when necessary.

All your personal information will be kept confidential. No one outside this study will have access to this information.

Voluntary consent; Your participation in this survey will be appreciated, we are only asking for your permission to participate. However if you are not interest in participating, no one will punish you for that. The choice to do so is entirely yours.

Would you like to ask anything about the study? May I begin the interview now? If you agree to be interviewed, you may please sign here;

Would you please give me your permission to continue my interview? 1. Yes----- 2.No-----

Name of the data collector -----Date-----Signature-----

Supervisor's name_ _____Signature_ _____Date_____

Thank you for your cooperation!!!

9.1 Participant Consent Form

I undersigned _____ have been told about the purpose and use of the study. I agreed to participate voluntarily in this study without any form of pressure. I know that my interview can be crucial on this study, which I have been informed that you are conducting to assess the prevalence of dental caries and its associated factors and I believe that the finding of this study will help to improve health status of ourselves.

My information will be kept confidentially and any identifiers that identify me will not be included such as my name by the researcher. I have been informed that there is no any harm to me and my family in participating.

I know that I have the right to interrupt the interview any time that I need. If I have any question regarding the study, I can ask principal investigator by any time.

Signature of participant _____ date _____

Name the primary investigator: Nigusu Gashaw

Cell phone: +251 (0) 915400699

Section-1 .Socio demographic Information			
S.N	Question	Answer	Code
1	Age	<=24 25--29 30--34 35--39 >=40	
2	Sex	1.Male 2.Female	
3	Unit (current working military unit)	1. .Regiment 2. Infantry Division 3 Staff	
4	Year of stay in army	1 ≤ 10 2 >10	
5	Military Rank	1.Privat(solder) 2..Corporal 3 Sergeant 4 .Lieutenant 5 .Captain 6 above Major	
6	Marital status	1.Single 2.Maried 3.Divorced 4.Widowed	
7	Educational back ground	1 Primary school 2 Secondary school 3 preparatory 4 .Diploma and above	
8	Place of birth	1 Hawasa 2 adama 3 bahair dar 4 Zewaye 5 shashmene 3 Other	

9	Monthly wage in Ethiopian Birr	1.<=2000 2. 2001----3000 3 > 3000
10	Do you chew chat now or before?	1.Yes 2.No
11	If yes chew Chat how often?	1.Daily 2.2-3 days a week 3.Once a week 4. Other
12	Do you smock cigarette?	1.Yes 2.No
13	If yes, how many cigarette per day do you smock?	1.<5 each 2.6-10 3.11-15 4.>15
14	Do you drink alcohol?	1.Yes 2.No
15	If yes, how often did you drink?	1. Usually 2. Same times 3. Occasionally 4. Other
16	What is your family economical status to compare with their neighbors?	1. Poor 2. Moderate 3. Rich

<u>Section 2 Dietary information</u>			
S.N	Questionnaire	Response	Code
17	What type of food do you ate usually for breakfast for the last one month?	1.Bread 2.kinche 3.Pasta 4.Pourage Other (specify)-----	
18	Do you taking milk during a day?	1.Yes 2.No	
19	If yes for Q 18 how often?	1.Daily 2.a week 2-3 day 3.Once in a week 4.Occussionaly	

20	What type of food do you ate usually for lunch for the last one month?	1.Bread and meat 2.Injera and meat 3.Bread and vegetables 4.Injera and vegetables 5.Bread and shiro or kik 6.Injera and shiro or kik	
21	Do you get snack in the last one month?	1.yes 2.No	
22	What type of food do you ate usually for dinner for the last one month?	1.Bread and meet 2.Injera and meat 3.Bread and vegetables 4.Injera and vegetables 5.Bread and shiro or kik 6.Injera and shiro or kik	

23	Do you drink tea with sugar daily?	1.Yes 2. No	
24	If yes, for Q.23 how many cups in a day	Number of cups -----	
25	Do you drink coffee with sugar daily?	1.Yes 2.No	
26	If yes, for Q.25 how many cups in day	Number of cups	
27	Do you take soft drinks?	1.Yes 2.No	
28	If yes, for Q.27 how many bottles in a week?	Number of bottles----- ---	
29	Do you eat sweet food staff	1.Yes 2.No	
30	If yes, for Q.29 how many times do you take in the week?	1.Daily 2. a week 2-3 days 3.Once in a week 4.Some times	

Section 3 knowledge and practice on oral health and dental caries

S.N.	Questionnaire	Response category	Code
31	Have you ever heard about dental caries?	1.Yes 2.No	
32	If yes, for Q.32 where the information get?	1.From mass media 2.From health professional 3.From calques 4.Other source	
33	Have you ever tooth decays and cavities tooth?	1.Yes 2.No	
34	If yes, for Q.33 what was the symptom of tooth ache?	1.Pain 2.Bad smell 3.Swelling 4.Bleeding 5.Other	
35	Where did you go to alleviate tooth ache?	1.To health institution 2.To private pharmacy 3.To traditional healer	
36	If you visit health institution what type of treatment did you get?	1.Tooth extraction 2.Tooth filling 3.Cleanig and scaling 4.Oral medication 5.Other (specify)	

37	How many permanent teeth did you loss by extraction	Number of loss-----
38	Do you clean your teeth?	1.Yes 2.No
39	If yes, for Q.39 what material do you use?	1.Chewing stick 2.Piece of cloth 3.Tooth brush with paste
40	Do you have tooth brush and Colgate paste?	1.Yes 2.No
41	If you use tooth brush, how often do you use?	1. Two times a day 2. Once in a day 3.Every three day 4.Occussional
42	If you have tooth brush and paste, how many a medium paste and toothbrush buy in a year?	1.Every three months 2.Every six months 3.Every one year 4.Above year
43	If you do not use tooth brush and pastewhat is your reason?	1.I do not know the advantage 2.It may cause bad mouth smell 3.I could not afford 4.Otther (specify)
44	Have you tattoood your gum to prevent dental caries?	1.Yes 2.No
45	Do you agree that pain of dental caries is one of the sever pains ?	1.Agree 2.Neutral 3.Disagree
46	Do you agree that a person who has dental caries go to traditional healer?	1.Agree 2.Neutral 3.Disagree

10. ? ? ? ? ? ? ? ? ? ?

በቅድሚያ የማክበር ሰላምታዬን እያቀረብኩ

እኔ _____ በባህር ዳር ዩኒቨርሲቲ በህክምና እና ጤና ሳይንስ ኮሌጅ በማህበረሰብ ጤና ሳይንስ ትምህርት ክፍል ተማሪ ስሆን የመመረቂያ ፅሁፍ ለማዘጋጀት በማደርገጧል የጥርስ በሽታ ስር ጭት የዳሰሳ ጥናት እርስዎ በጥናቱ ተሳታፊ እንዲሆኑ ስለተመረጡ የምጠይቁት ጉዳይ ቢኖር እንደሚከተለው ይሆናል:: ይኸውም የአፍዎት ጤና ሁኔታ በጥርስ መቦርቦር ጋር ስላለው ዝምድናና ስለ አፍዎት የጤና አጠባበቅ ሁኔታ ያሉትን ግንዛቤ ለመረዳት ነው:: በዚህ መጠይቅ ውስጥ ስሞን አልፎም ስሞትን ከሚሰጡኝ መረጃ ጋር በፍፁም አልጠቀምም:: የመሰለዎትን መልስ የመመለስ መብት አለዎት ፣ ይህን መጠይቅ እርሶዎ በፈለጉት ሰዓት መጨረስ ይችላሉ:: ነገር ግን ለዚህ መጠይቅ የእርሶዎ እውነተኛና ቀና መልስ በሰራዊታችን ውስጥ ያለውን የጥርስ መቦርቦር በሽታ ስር ጭት እና ለጥር ስመ ቦርቦር እገዛ የሚያደርጉ መንስኤ የሆኑትን ለማወቅ ስለሚረዳና ለቅድመ መከላከል ዝግጅቱ ከፍተኛ እገዛ ስለሚሆነን ነው:: በዚህ አጋጣሚ በዚህ የዳሰሳ ጥናት ለሰጡን ቀና መልስ ልባዊ ምስጋናዬን አቀርባለሁ::

?? ? ? ? ? ? ? ? ? ?

የጥርስ መቦርቦር በሽታና ማንኛውም የአፍዎ ውስጥ የጤና ችግር ቢኖርቦት አስፈላጊውን ህክምና ያገኛሉ:: እንዲሁም ስለ አፍዎት የጤና አጠባበቅ ሁኔታ በቂ መረጃ ያገኛሉ::

በመ□ ይቁ ለመሳተክ አ ቃ□ኛ ነዎት?
1. አዎ 2. አይደለሁም

□ኮረ□ ሰብሳቢ ስም ቀን ፊርማ.....

የተቆጣጣሪው ፊርማ----- ቀን.....

ስለትብብርዎ አመሰግናለሁ!!!!

10.1 የጥናቱ ተሳታፊ የስምምነት ውል ቅፅ

እኔ ከስር ፊርማዬን የፈረምኩት-----ለዚህ ጥናት የሚሆን መረጃን ያለማንም ጫና እና ግፊት ለመስጠት ፍቃደኛ ነኝ ስለ ጥርስ በሽታ እዉቀት አመለካከት እና ተግባር እንዲሁም ተያያዥነት ያላቸውን ችግሮች በሰራዊቱ ውስጥ ለማጥናት እንደሆነ ቀደም ብሎ እንደ ተገለፀልኝ ከኔ የሚገኘው መረጃ ለዚህ ጥናት በጣም ጠቃሚ እንደሆነና የኔንም ሆነ የሰራዊቱን የጤና ሁኔታ ለማሻሻል ወሳኝ እንደሆነ ተረድቻለሁ። ቀጥሎ የምሰጠው ማንኛውም መረጃ በጥናቱ አድራጊ ሚስጥሩ ይጠበቃል። በጥናቱ በመሳተፊ ብቻ በራሴም ሆነ በቤተሰቤ ላይ ምንም አይነት ጉዳት እንደማይደርስብኝ ተነግሮኛል ምንም እንኳን በጥናቱ ለመሳተፍ መስማማቴን ብገልፅ ምጥሩ መስሎ ካልተሰማኝ በማንኛውም ጊዜ ቃለ መጠይቁን የማቋረጥ መብት እንዳለኝ አውቄ አለው ጥናቱን በተመለከተ ማንኛውንም ጥያቄ መጠየቅ የምችል መሆኑን ተነግሮኛል። ስለዚህ በጥናቱ ለመሳተፍ ፈቃደኛ ነኝ ።

የጥናቱ ተሳታፊ ፊርማ.....ቀን.....

የዋና ተመራማሪው ስም ንጉሱ ጋሻው

አድራሻ: ሰልክቁጥር - 09 1540 0 699

ጳጳስ ኣንድ ኣጠቓላይ መረጃ			
ተ.ቁ	መጻግሌት	መልስ	ክት
1	ክት-መጻግሌት	1. 24 2. 25--29 3. 30--34 4. 35--39 5. 40	
2	ጻጋ	1. ወንድ 2. ሴት	
3	ጳጳስ ጳጳስ	1 ራድመንት 2 እግረኛ 3 እስታፍ	
4	የቅጥር ዘመን	1 10 ዓመት በታች 2 10 ዓመት በላይ	
5	መግረፅ	1 . ጳጳስ 3. አስራ አለቃ 3 ሃምሳ አለቃ 4 መቶ አለቃ 5 ሻንብል 6 ሻለቃ አናበላይ	

6	የጋብቻ ሁኔታ	1. <input type="checkbox"/> ተቆ 2. <input type="checkbox"/> ሌላ/ሌሎች 3. <input type="checkbox"/> ተኝታ 4. <input type="checkbox"/> ምትቦት/ባት	
7	የትምህርት ደረጃ	1. ከ1ኛ-8ኛ 2. ከ9ኛ-10ኛ 3 ከ 11--12 4 .ዲፕሎማና ከዛ በላይ	
8	የትውልድ ቦታ	1 አዋሳ 2 አዳማ 3 ባህዳር 4 ዝዋይ 5 ሻሸመኔ 4 ሌላ ካለ ይግለፁ	

9	<input type="checkbox"/> ርብ <input type="checkbox"/> ብ <input type="checkbox"/> ም	1 2000 እና በታች 2 ከ2001-3000 3 ከ3000 በላይ	
10	ጫት ይቅማሉ?	1.አ- 2.አልቅምም	
11	አዎ ከሆነ በስንት ጊዜ <input type="checkbox"/> ቅማሉ?	1. በየቀኑ 2. በሳምንት ከ2-3 ጊዜ 3. በሳምንት አንድ ጊዜ 4. ሌላ ካለ <input type="checkbox"/> ቻለን	

12	ሲፍር ስፍራ ሳሉ?	1.አ- 2.አላ ስም	
13	መልስዎ አዎ ከሆነ በቀን ምን ያህል ያጨሳሉ?	1. ከ5 ፊሬ በታች 2. ከ6-10ፍሬ 3. ከ11-15 ፍሬ 4. ከ15 ፍሬ በላይ	
14	አልኮል ስፍራ ሳሉ?	1.አ- 2.አል ስም	
15	መልስዎ አዎ ከሆነ ምን ያህል ፅፍ ስፍራ ሳሉ?	1. አዘውተሬ እስኪሆን 2. አል ስፍራ እስኪሆን 3. የተለየ ሁኔታ ሲኖር 4. ሌላ ክስ ይገለፅ	
16	በተሰቡት ስፍራ ደረጃ ከአካባቢው ጎረቤቶቻችሁ ስር ሲወዳደር ምን ይመስላል?	1. ስ 2. መካከለኛ 3. ሁብታም	

ክፍል ሁለት የአመቶብ መረጃ

ተ/ቁ	መጠቅ	መልስ	ኮት
17	ባለፉት አንድ ወር ግዜውስጥ አዘውትረው የተመገቡት ቁረስ ምን ነበር ?	<ol style="list-style-type: none"> 1. <input type="checkbox"/>ቦ 2. ቂንጮ 3. <input type="checkbox"/>ስታ 4. ጎንፎ 5. ሌላ ካለ <input type="checkbox"/>ብለን 	
18	በየቀኑ ወተት ያገኛሉ?	<ol style="list-style-type: none"> 1. አ- 2. አላገኝም 	
19	ለፊቱ 18መልሱ አዎ ከሆነ በሳምንት ምን ህል ያገኛሉ?	<ol style="list-style-type: none"> 1. በየቀኑ 2. በሳምንት ከ2-3 ፅ 3. በሳምንት አንድ ግዜ 4. አልፎ አልፎ 	
20	ባለፉት አንድ ወር ግዜ ውስጥ አዘውትረው ምን ተመገቡት ምን ነበር ?	<ol style="list-style-type: none"> 1. <input type="checkbox"/>ቦ በስፍራ <input type="checkbox"/> 2. እንጂ በስፍራ <input type="checkbox"/> 3. <input type="checkbox"/>ቦ በአትክልት 4. እንጂ በአትክልት 5. <input type="checkbox"/>ቦ በሽሮ <input type="checkbox"/>ም በክክ <input type="checkbox"/> 6. እንጂ በሽሮ <input type="checkbox"/>ም በክክ <input type="checkbox"/> 	
21	ባለፈው አንድ ወር ውስጥ በየቀኑ መጠን <input type="checkbox"/> ብለን ነበር?	<ol style="list-style-type: none"> 1. አዎ 2. አላገኝም 	
22	ባለፉት አንድ ወር ግዜ ውስጥ አዘውትረው እራት የተመገቡት ምን ነበር ?	<ol style="list-style-type: none"> 1. <input type="checkbox"/>ቦ በስፍራ <input type="checkbox"/> 2. እንጂ በስፍራ <input type="checkbox"/> 3. <input type="checkbox"/>ቦ በአትክልት 4. እንጂ በአትክልት 5. <input type="checkbox"/>ቦ በሽሮ <input type="checkbox"/>ም ክክ <input type="checkbox"/> 6. እንጂ በሽሮ ወይም ክክ <input type="checkbox"/> 	

23	ሻ□ በሰኔ በየቀኑ □□□ ለ?	1. አዎ 2. አል□□ም	
24	ለ□□ቱ 23 መልስዎ አዎ ከሆነ በቀን ምን ያህል ኩባያ □□□ ለ?	□ኩባያ በዛት ---	
25	ቡና በሰኔ በየቀኑ የጠጣሉ?	1. አዎ 2. አልጠጣም	
26	ለ□□ቱ 25 መልስዎ አዎ ከሆነ ምን ያህል ኩባያ □□□ ለ?	□ኩባያ በዛት	
27	ለስላሳ መጠጦች ይጠጣሉ?	1. አዎ 2. አልጠጣም	
28	ለ□□ቱ 27 መልስዎ አዎ ከሆነ በሳምንት ምን □ህል □ርሙስ □□□ ለ?	የጠረመዝ ብዛት	
29	□ኛ□ ምፅቦች አንደ ከክና ብስኩት ይመጣሉ?	1. አዎ 2. አልመጣም	
30	ለ□□ቱ 29 መልስዎ አዎ ከሆነ በሳምንት ምን □ህል ፅ□ □□ስ□ ለ?	1. በየቀኑ 2. ከ2-3 ጊዜ 3. በሳምንት አንድ ጊዜ 4. አልፎ አልፎ	

☐አል ሦስት ስለ ☐ርስ መቦርቦርና የአፍ ንፅህና አጠባበቅ ያለ ግንዛቤ እና ልምት መረ☐

ተ/ቁ	መ☐☐ቅ	መልስ	ከ ት
31	ስለ ☐ርስ መቦርቦር በሽታ ሰምተው ☐☐ቃሉ?	1. አዎ 2. አይደለም	
32	ለ☐☐ቁ 31 መልስዎ አዎ ከሆነ መረጃ ከየት ነው ☐የዱት?	1. ከመገናኛ ብዙሃን 2. ከጤና ሙያተኞች 3. ከጋደኞቹ 4. ከሌላ	
33	የበሰበሰ ☐☐ም ☐ተቦረቦረ ጥርስ ኖሮዎት ☐☐ቃል?	1. አዎ 2. አይደለም	
34	ለ☐☐ቁ 33 መልስዎ አዎ ከሆነ ምን አይነት ምልክት ነበርዎት?	1. ☐☐ርስ ህመም 2. መጥፎ የአፍ ጠረን 3. እብጠት 4. መድማት 5. ሌላ	
35	የጥርስ ህመም ኖሮዎት ☐ግሊ☐☐ቅ ከነበረ ለህክምና ወዴት ሄዱ?	1. ወደ ጤና ተቋም 2. ወደ ግል መድሃኒት ቤት 3. ወደ በህላዊ ህክምና	
36	ወደ ጤና ተቋም ከሄዱ ምን አይነት ህክምና ተገኝተዎት?	1. ጥርስ መንቀል 2. የጥርስ ሙሌት 3. ጥርስ ማፅዳት 4. የህመም ማስተገኛ መድሃኒት 5 ሌላ ካለይገለጹ	
37	ምን ያህል ጥርስ አስነቅለዋል?	የተነቀለ ጥርስ በዛት -----	
38	ጥርስዎን ☐ና☐ሉኝ	1. አዎ 2. አይደለም	

39	ለ□□ቁ 38 መልስዎ አዎ ከሆነ በምን ያፀዳሉ?	1.በመኛቂያ 2.በንፁህቁራ-□ □ ርቅ 3.በ□ርስ ብሩሽና በጥርስ ሳሙና	
40	የጥርስ ብሩሽና የጥርስ ሳሙና አለዎትኝ	1.አዎ 2.አይደለም	
41	□□ርስ ብሩሽና ሳሙና የሚጠቀሙ ከሆኑ ምን ያህል ጊዜ □ና□ሉ?	1.በቀን ሁለት ጊዜ 2.በቀን አንድ ጊዜ 3.በየሶስት ቀን 4.አልፎአል□	
42	የመካከለኛ የጥርስ ሳሙና የጥርስ ብሩሽ በአመት ምን ያህል ይገዛሉ	1. በሶስት ወር 2. በየሶድስት ወር 3. በአመት 4. ከአመት በላይ	
43	□ርስ- በ□ርስ ብሩሽና በሳሙና የማያፀዱ ከሆኑ ምክንያቱ ምንድን ነው?	1. □ ቀሜታ□ን አላውቀውም 2.አፍ ስለሚያሸት 3.ዋጋው ውድ ስለሆነ 4.ሌላካለ ይገለፅ	
44	የጥርስ መቦርቦር ለመከላከል ድድዎ አስነቅስው □□ቃሉ?	1.አዎ 2.አይደለም	
45	የጥርስ ህመም ለሰው ልጅ ከፍተኛ ህመም/ስቃይ ነው ብለው □ስማማሉ?	1.አስማማለሁ 2.ልስማማምላልስማማምአችላለሁ 3.አልስማማም	
46	የጥርስ መቦርቦር ያለውን ሰው ወደ ባህላዊ ህክምና አንዲ ሄት □ስማማሉ?	1.አስማማለሁ 2.ልስማማምላልስማማምአችላለሁ 3.አልስማማም	

STUDENT DECLARATION PAGE

Title: prevalence of Dental caries and Associated Factors among the Military persons, in Assossa military camps, Benishangul-Gumuz Region, Western Ethiopia.

I, the under signed, declared that this is my original work, has never been presented in this or any other University, and that all the resources and materials used for the thesis, have been fully acknowledged.

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This thesis work has been submitted for examination with my approval as University Supervisor.

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