ADDIS ABABA UNIVERSTY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

Smoking, and associated factors among military personnel in Ethiopia.

By :-Alemayehu Tadesse (B.Sc.)

A THESIS SUBMITTED TO THE SCHOOL OFGRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIRMENTSFOR THE DEGREE OF MASTER IN PUBLIC HEALTH

Advisor:- Dr. Assefa Seme (MD,MPH)

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ACRONYMS

AOR	Adjusted Odds Ratio
CI	Confidence Interval
DOD	Department Of Defence
DSM-IV	Diagnostic and Statistical Manual
EDHS	Ethiopian Demographic and Health Survey
FCTC	Framework Convention on Tobacco Control
ICD	International Classification of Diseases
KM	Kilo Meter
OR	Odds Ratio
SES	Socio Economic Status
SPSS	Statistical Package for Social Sciences
USAF	United States Air Force
WHO	World Health Organization

ABSTRACT

Background: *Cigarette smoking is a known risk factor for chronic diseases. It is predicted that by the 2020s there will be about 10 million tobacco related deaths annually worldwide. Improved understanding of factors that contribute to smoking initiation and cessation may help to set strategies that lead to smoking behaviour change.*

Objective: *To assess the prevalence of smoking, and factors associated with smoking initiation among military personnel.*

Method: *A cross-sectional study was conducted and data was obtained from 398 men and women aged 18-52 years in two Defence military academies, located in Holeta and Awash Arba, 30 km and 250 km away from Addis Ababa, respectively. Information on smoking habits, socio-demographic and psycho-social factors were collected through self-administered questionnaire, from January to February 2011. The study population was selected by systematic sampling technique after stratification was made. Data was entered using Epi Info 3.51 version and analyzed using SPSS version 15. Bivariate analysis was used to examine association between dependent and independent variables.*

Result: *Of 398 respondents 86 (21.6%) were current regular smokers, and 165(41.5%) reported having alcohol drinking habit. Majority of smokers were men, unmarried, low education and income status. Smoking initiation was associated with low educational status, OR (2.70, 95% CI, 1.14-6.39), and low income status, OR (3.29, 95% CI, 1.39-7.84).*

Conclusion: *Current smoking status was found to be associated with low educational and low income status.*

Recommendation: *Addressing socioeconomic and educational differences, by upgrading income status and promoting access to education and awareness raising on smoking harm will be required to reduce prevalence of smoking among military personnel.*

1. Background

Use of tobacco accounts for 3 million deaths each year worldwide (1).The global health care costs resulting from tobacco use exceed $200 billion a year-more than twice the current health budgets of all developing countries combined (2). It is predicted that by the year 2020, there will be about 10 million tobacco related deaths annually worldwide, and most of the increase in deaths will occur in the developing countries (2, 3). The World Health Organization's Framework Convention on Tobacco Control (FCTC) became international law in 2004 and is a comprehensive tobacco control treaty which includes an article for 100% smoke-free policies. Other measures against tobacco include increasing taxes on tobacco, improving consumer information, health warning labels on tobacco products, banning tobacco advertising, and facilitating access to smoking cessation treatment (4).

Reasons for smoking initiation differ across cultures but certain factors have an established association with smoking. Parental, and peer smoking have been shown to be strongly associated with an individual's smoking status (5). Low academic achievement and low socioeconomic status are also associated with smoking status (6). Individuals who have experienced a stressful life or job strain have less often quit smoking. Moreover, smoking has been consistently reported to be a coping behaviour for dealing with stress (7, 8).

There are more than 4,000 different compounds in tobacco smoke. More than 40 of the chemicals in tobacco are known to cause cancer. Tobacco dependence is also recognized as a disease in the World Health Organization's International Classification of Diseases (ICD-10) and the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV) (9).
The United States military has increasingly concerned about the rate of smoking among its personnel. Smoking and its related health problems cost the military nearly $1 billion each year among active duty personnel alone and clearly impacts the health of combat troops (11).

There are few studies done in Ethiopia concerning cigarette smoking and factors associated with smoking. Little is known about either the prevalence of smoking or associated factors in military setting in Ethiopia. This study has tried, to determine the prevalence of smoking and explored factors associated with initiation of smoking among military personnel in Ethiopia. The study will provide important data for military tobacco control efforts, to design appropriate interventions that fill the identified gaps and mitigate the problem.

2. LITERATURE REVIEW

2.1 Magnitude of smoking among general population

Smoking, which is the major single known cause of non-communicable diseases, is widespread around the world. The World Health Organization (WHO) estimates that about 30% of the adult male global population smokes (9). National smoking prevalence among men in sub-Saharan African countries varies from 20% to 60% and the annual cigarette consumption rates are on the rise for both men and women (10). Among sub-Saharan African youth, rates of smoking range from 1.4% in Zimbabwe and 1.5% in Nigeria to 34.4% in Cape Town, South Africa, which is cause for concern. In Kenya, 7.2% of school-going adolescents smoke cigarettes while 8.5% use other forms of tobacco products (10). The prevalence of smoking among young Ethiopian (15-25 years of age) living in Addis-Ababa was 11.8% for males and 1.1% for females in 1995 (12).
Based on Ethiopian Demographic and Health Survey (EDHS) 2005 report, among men with the age range of 15-49 years in Ethiopia, 9% of them smoke cigarettes and 5% consume other forms of tobacco. Even though, there is no complete data on the prevalence of smoking among women, EDHS shows that less than 2% of women in Ethiopia smoke cigarette (18).

2.2 Factors associated with smoking among general population

There are common predictors of adolescent smoking initiation and progression to daily smoking. Peer smoking, single-parent family, older age, predicted smoking onset. Frequency of smoking, parental and peer smoking, and low parent-child connectedness are also predictors of progression to daily smoking (12).

The reasons smokers have given for maintaining the habit, once initiated, can be summarized as pleasure-taste, addiction, habit, anxiety, stimulation, and social rewards. Those individuals who started smoking at younger age and smoke more cigarettes per day have less often quit smoking (7, 13). Recent studies shows higher smoking rates among persons of low socioeconomic status, since it is known that people often smoke as a "coping response" to environmental stressors (14).

In a large-scale prospective cohort study in the Netherlands, the research on smoking initiation and cessation, gives the following hypotheses: Individuals who have experienced more adverse life events have more often started smoking. Those individuals who report themselves as more neurotic, hostile or less able to master situations, have more often started smoking. Individuals who have experienced a stressful life or job strain have less often quit smoking (14).

Behavioural problems such as depression, low self-esteem, and poor academic performance are other predictors of smoking initiation and persistence and may be more important for persistence than initiation(15). Cross-sectional studies consistently report that increased taxation is associated with reductions in rates of smoking and extensiveness (number of days per month a person smokes/number of cigarettes smoked) of smoking. Based on studies of adults, it was hypothesized that smoking cessation would be less likely in adolescents who are female, and those with higher levels of alcohol use and certain psychological attributes. Cessation would be more likely for lighter smokers, those with shorter smoking histories, and for those with experience of quitting and intentions to quit (16), as predicted by the addiction model of smoking. Hein de vries et al, work on peer pressure suggested that peer pressure to smoke constituted the most important factor in smoking uptake among adolescents (16).

Van Walbeek ascribed most of the reduction in cigarette consumption between 1993 and 2000 in South Africa to sharp increases in cigarette prices (17). Thus, in order to determine which measures may be most effective and cost-effective in curbing the tobacco epidemic in a given country, it is important to understand the socio-economic distribution of tobacco consumption in that country.

A population based study in the united states have found high smoking rates among selected populations of persons with mental illness, such as psychiatric outpatients and patients in a state mental hospital. Persons with mental illness encounter greater difficulty with tobacco cessation. Forty-one percent of persons who reported having mental illness were current smokers and represented 40.6% of all current smokers in the United States (20).

Smoking levels shows to increase with income as smokers increase their consumption to the extent to which they can afford, but later, tobacco consumption becomes concentrated among those with lowest income and education. (3) In urban Tanzania and another population in Nigeria, low socio-economic status was found to be associated with smoking status. Similarly, in urban Chad low socio-economic status and unemployment was found to be associated with smoking initiation (21).

A study conducted in Butajira, Ethiopia shows there was a strong and significant increasing Prevalence of smoking with increasing income group (1.4% lowest income group to 23.2% highest income group (22).

Although few studies have directly explored the association between socio-economic status and smoking in Ethiopia, in one study conducted among Ethiopian university instructors, lifetime prevalence of smoking was shown to increase with level of education and level of income (23).

2.3 Magnitude of smoking among military

Tobacco use by American military personnel on active duty has greatly exceeded that found in the civilian population. The first Department of Defence survey of health-related behaviours reported an overall cigarette smoking rate of 51% for military personnel on active duty. According to the most recent DOD survey (1995), the overall cigarette smoking rate for service members on active duty had declined to 33%. This decline has been attributed to an increased emphasis on smoking cessation and prevention in the military (25).

One segment of the US population with a disproportionately high smoking rate is the US military. From 1998 to 2002, the military witnessed an increase in smoking among active-duty personnel, from 29.9% to 33.8% (24). Among the service branches, the Marine Corps has the highest (38.7%) and the Air Force the lowest (27.0%) percentage of smokers. In addition, more than 12% of military personnel report using smokeless tobacco (14.5% among males). Of particular concern is that more than 30% of active-duty personnel who smoke report having initiated smoking after entering the military, raising the possibility that the military culture encourages smoking (24).

2.4 Factors associated with smoking among military

In the British Armed Forces, cigarette smoking has not shown the decline seen in the civilian population and is reflected by excess rates of coronary heart disease. For the same reason it is expected military personnel to be at excess risk of other tobacco-related conditions including stroke, peripheral vascular disease and lung cancer. There are also immediate consequences in military recruits. Smoking reduces physical fitness and increases exercise-related physical injury. The adverse effects extend to passive smoking (19, 24).

The high rate of tobacco use among Department of Defence (DOD) personnel puts a substantial burden on military health care and combat readiness. Military personnel who smoke are less productive, are more likely to miss duty days because of illness, perform worse on physical fitness tests, experience significantly more training injuries, and are more likely to be discharged within the first year of service relative to non smoking personnel(25).

Smoking has been shown as a frequently reported maladaptive coping mechanism among those reporting stress. Individuals in stressful occupations have been shown to use tobacco at higher rates than the general population. Occupational stress related to serving in the military has also

been shown to be a strong predictor for both cigarette smoking and nicotine dependence (26).The stress of military deployment may compound already high occupational stress and manifest in different maladaptive coping behaviours such as increases in the use of tobacco, alcohol, and other drugs. In a cross-sectional survey of U.S. troops deployed to Iraq and Afghanistan, nearly 40% smoked at least one half packs of cigarettes per day, with nearly half of smokers stating that they started or resumed smoking during their deployment (26). A survey of a small group of British military medical professionals reported similar findings of increased smoking rates post deployment among non smokers and increased daily cigarette intake among smokers. The reasons given for starting to smoke or for smoking more were boredom, the perceived social benefits, stress, the smoking culture in the army and the low price of cigarettes locally (26).

The strongest predictors of smoking status among USAF were social. Specifically, having more friends who smoke and viewing smoking as more socially attractive significantly increased one's risk of smoking. Social factors have impact both on smoking onset and maintenance among young adults (27). Individuals with less education, those from higher income households and those who were married were more likely to be smokers. Alcohol use was significantly related to increase in the likelihood of being a smoker compared with a non-smoker (28).

Findings indicated substantial substance use and perceived high stress in the US armed forces. Military women reported substantially lower rates of heavy drinking than men, but had similar rates of illicit drug use and cigarette smoking. Both military women and men were more likely to describe their military duties as more stressful than their family or personal lives. Stress at work was an important predictor of substance use among military men and women (28).

A study done among military health care personnel in Istanbul, Turkey shows there was a significant difference among smoking rate and level of education. The smoking rate decreased with an increase in the level of education (31).

3. OBJECTIVES

3.1 **General Objective**

To assess smoking prevalence, and factors associated with smoking initiation among military personnel.

3.2 **Specific Objectives**

1. To determine the prevalence of current smoking among military personnel.
2. To determine socio-demographic predictors of current smoking among military personnel.
3. To identify job related factors associated with smoking initiation among military personnel.

4. METHODS

4.1 Study area and period

The study was conducted at the Ministry of Defence Holeta military academy located in Holeta town which is 30 km West of Addis Ababa and Awash Arba military academy located in Awash Arba town which is 250 km East of Addis Ababa from January to February 2011.

4.2 Study design

The study used quantitative study method in the form of cross-sectional survey in two Defence military settings located at Holeta and Awash Arba. Data was collected using self administered questionnaire to assess smoking status, smoking history and factors associated with smoking.

4.3 Population

4.3.1 Source population

- Source population were all military men and women of 18 years and above residing in the training centre during the data collection period.

4.3.2 Study population

- Sampled military personnel at the targeted institutes, age 18 years and above within the data collection period.

4.4 Inclusion and Exclusion criteria

Inclusion criteria:

- All sampled military personnel 18 years and above.

Exclusion criteria:

- Non volunteer to participate
- Persons on leave
- Seriously sick persons

4.5 Sample size and sampling procedure

4.5.1 Sample size:

The required sample size for the study was determined using single population proportion formula with the following assumption:

$$n = (z\alpha)^2 \, pq \, / d^2$$

Where: n = sample size

z = 1.96, standard normal distribution corresponding to significance level at $\alpha = 0.05$

p= expected proportion (0.10) of smokers, taken from previous similar study.

q =100-p

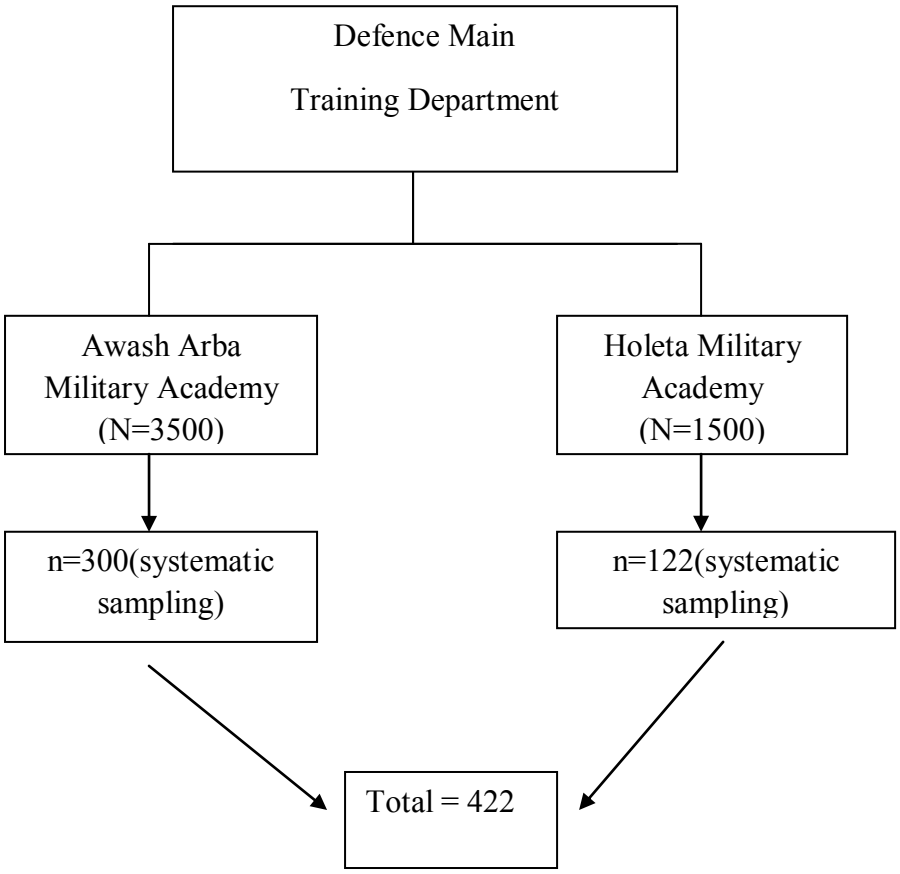
d = margin of error (3%) around P

The sample size calculated was 384 and 10% was added for expected non-response rate. The total sample size calculated was 422.

4.5.2 Sampling Procedures

Holeta and Awash Arba military academy were selected by convenience. The Study subjects were taken after stratifying the total study population in to staff and trainee category. Systematic sampling was used to select and approach study subjects. The sampling fraction was determined by dividing the study population over the source population in the respective institutions, and based on this, every person until the allocated sample size obtained was included in the study. To allow a representative proportion the sample size was divided according to population size of military in the institution.

Fig.1 Schematic presentation of sampling procedure



4.6. Data collection and measurement procedure

4.6.1 Study Variables

Independent variables

Socio demographic factors

- Age
- Marital status
- Education
- Income
- Rank

Psychosocial factors

- peer pressure (Having smoker friend)
- Stress at work

Job related factors

- Job category
- Deployment abroad

Smoking habit

- Number of cigarettes smoked per day
- Age at first initiation of smoking.

Dependent variable

- Current smoking status

4.6.2 Data collection method

A self administered questionnaire was employed to assess smoking status, socio-demographic, psychosocial factors associated with smoking, knowledge on smoking and other health behaviours among military personnel. Standardized and pre-tested structured questionnaire was administered to study participants.

4.6.3 Data collection instrument and pre-testing

Data was collected using pre-tested structured questionnaire which has questions on socio-demographic variables, factors associated with smoking initiation and other related questions. The questionnaire was prepared in English and translated to Amharic. The instrument was additionally developed from different literatures developed for similar purpose by different authors. Before the actual data collection, the questionnaire was tested on 5% of the total samples that is on 21 persons found in Addis Ababa.

4.6.4 Data collection process

The data collection was conducted from January 2011 to February 2011 in the respective institutions. Standardized pre-tested Amharic version questionnaire was used. Written consent form on the first page of the questionnaire and instruction on how to fill the questionnaire was provided. After questionnaire was given to respondents detail explanation about the study objectives and the contents of the questionnaires was given by supervisors and principal investigator. Respondents have told they can communicate with supervisors at any time for further briefing. During return of questionnaires clarity of filled questionnaires were checked by supervisors.

4.7 Data quality management

A two days training was given for three health officers and three diploma nurses, which were recruited to monitor the data collection process. Intensive training was given by the principal investigator on objective of the study, the concepts of the questionnaire, how to handle questions rose by study participants, and on how to administer and collect questionnaires back from respondents. Clarity of the filled questionnaire was checked carefully. Any error and incompleteness were addressed on time. Comments were given at time of data collection for further briefing of instructions to avoid inconsistent responses and redundancy of answers.

4.8 Data entry and analysis procedure

Data was entered using Epi Info 3.51 version and analyzed using SPSS version 15. Frequencies and graphs were used to describe study variables. Odds ratio and chi-square was used to examine association between dependent and independent variables. A 95% CI and p-value of < 0.05 was considered statistically significant.

4.9 Data quality assurance:

Pre testing the questionnaire, proper explanation on how to fill the data on the first page of the questionnaire, and close supervision during data collection period were maintained the data quality. Data was entered using Epi info version 3.51 checked and cleaned and then exported to SPSS version 15 for analysis. Data was cleared by frequency tables and data analysis were done using SPSS version 15. Association between dependent and independent variables were determined by calculating odds ratio and 95% CI. Binary logistic regression was used to investigate predictors of current smoking.

4.10 Ethical consideration: Ethical clearance was obtained from Institutional Review Board (IRB) of Addis Ababa University. Letter of permission from Defence main training department and informed consent from study units was obtained before data collection process.

Confidentiality of the information collected was maintained. Participation in this study was based on voluntarily basis. Detail explanation about the study objective was explained in the consent form. Anonymity of the respondents was kept and information pertaining persons were kept confidential. Individual identifiers like names and other personal information's was excluded from the questionnaire. Records that contain information's like psychological well being, substance use which have negative impact on participants future career were kept confidentially.

4.11 Operational definition

Smoker: Defined as a person who smoked at least 100 cigarettes in lifetime both still smoking and quitted smoking <12months ago.

Current smoker: An individual answering yes to the question 'Do you smoke cigarette now?'

Regular smoker: Is defined as smoking at least one cigarette per day on each day of the previous week for at least one year.

Never smoker: A person who did not smoke during his whole life.

5. RESULTS

5.1. Socio-demographic characteristics of study subjects

A total of 422 persons who fulfil the inclusion criteria were selected, out of which 398 questionnaires were returned from study participants (response rate 94.3%).Complete data were obtained from 398 military personnel.

Majority of participants 385 (96.7%) were males and 13 (3.3%) were females. From the study subjects 214(53.8%) were in the age group between 18-29 years, and 184 (46.2%) were 30 and more years. The mean age was 29.6 ± 8.6 years and the median age of respondents was 27.5 years (Table1).

The study subjects were from Holeta military academy which constitute 112 (28.1%) and the rest 286 (71.9%) were from Awash Arba military academy. Majority of study participants 209 (52.5%) has service years of 1-10 years and 189 (47.5%) of participants has a service years of greater than 10 years. The military rank of study participants were categorized in to 133 (33.4%) private military rank followed by junior officer 103 (25.9%), non-commissioned officer 100 (25.1%), and senior officer 62 (15.6%).

The marital status of study participants reveals, 195 (49%) were never married and the rest 203 (51%) were ever married. The educational status of participants shows that 125 (31.4%) were college/university level, 113 (28.4%) high school and 97 (24.4) junior high school and the rest 63 (15.8%) were primary schooling.

Of the participants 240 (60.3%) were Orthodox Christians followed by 70 (17.6%) Muslim and the rest 88 (22.1%) belonged to other Christianity religions. The main ethnic group of study participants were Oromo which accounts 132 (33.2%), followed by Amhara 110 (27.6%),Tigray 91(22.9%) and the rest were from southern nations and nationalities (Welayta, Sidama, Gurage and others) which constitutes 65 (16.3%) of the study participants (Table 1).

Table 1. Socio-demographic characteristics of military personnel in Holeta and Awash Arba military academy May, 2011.

Characteristics	Number	Percent
Age group		
18-29yrs	214	53.8
30 or more	184	46.2
Mean±SD	29.6±8.6yrs	
Median	27.5yrs	
Sex		
Male	385	96.7
Female	13	3.3
Marital status		
Never married	195	49
Ever married	203	51
Ethinicity		
Oromo	132	33.2
Amhara	110	27.6
Tigray	91	22.9
Other	65	16.3
Religion		
Orthodox	240	60.3
Muslim	70	17.6
Other christianity	88	22.1
Education		
Primary	63	15.8
Junior high school	97	24.4
Senior high school	113	28.4
College/university	125	31.4
Job category		
Combat department	242	60.8
Adminstrative staff	97	24.4
Health personnel	10	2.5
Maintenance&suppo.staff	49	12.3
Income/month(Br)		
<500	104	26.1
501-1000	108	27.1
1001-1500	90	22.6
>1500	96	24.1

Table 1.cont...

Military Rank		
Private soldier	133	33.4
Non comissioned officer	100	25.1
Junior officer	103	25.9
Senior officer	62	15.6
Service year		
1-10 yrs	209	52.5
>10yrs	189	47.5

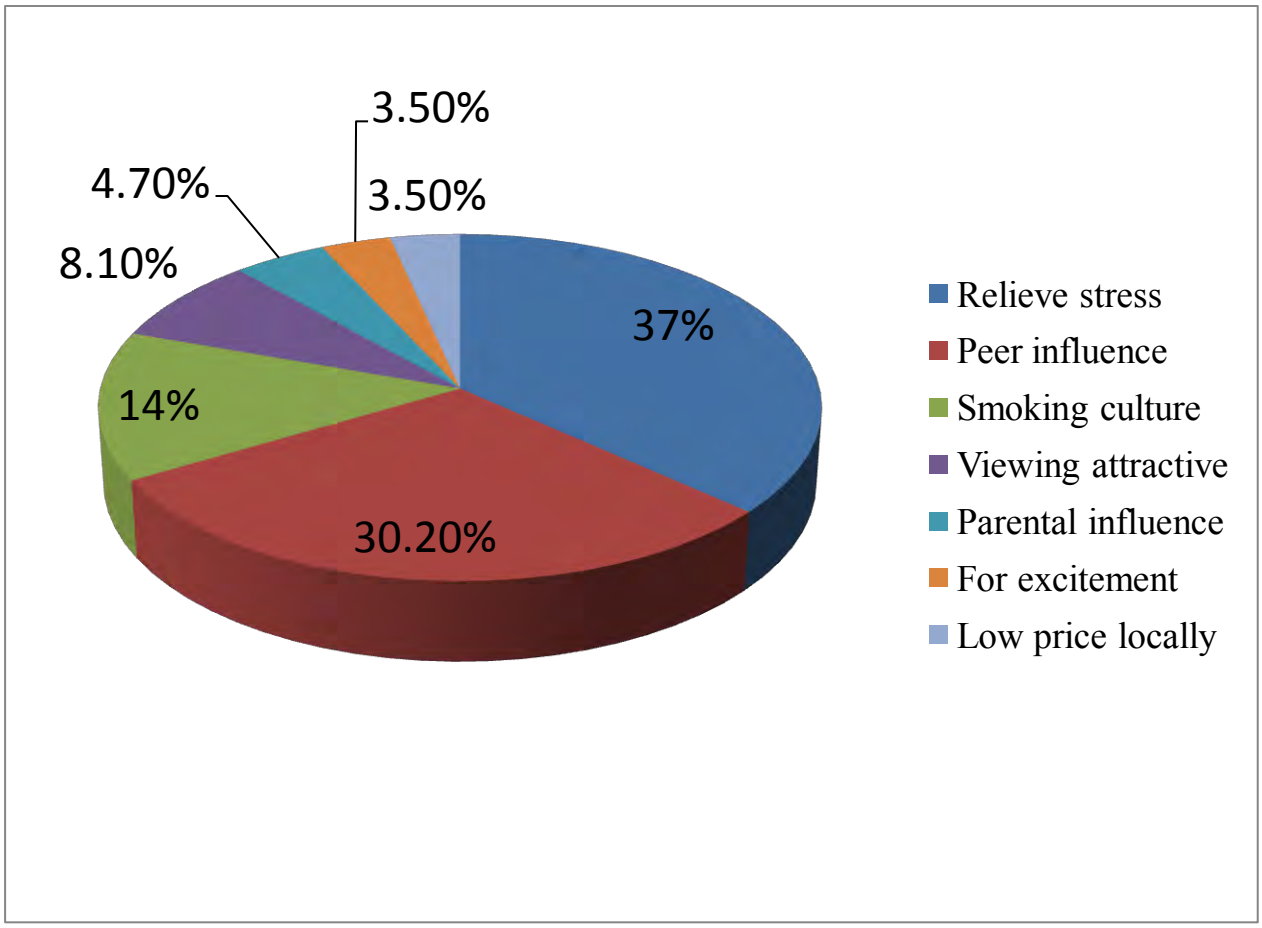
5.2 Cigarette smoking pattern and other practices

Of the total 398 study subjects, 86 (21.6%) with 95% CI (17.7%-26%) were currently smoking cigarettes regularly, 25 (6.3%) reported to chew khat currently, and 165 (41.5%) reported having current alcohol drinking habit. A large percentage of population 312 (78.4%) indicated never smoked cigarette. Of 86 current smokers 65(75.6%) users smoked <10 (1/2 pack) cigarettes a day, and 21 (24.4%) were daily smokers of more than 10 cigarettes.

Most smokers (79.1%) start smoking between the age of 16-24 years (Table 2). The proportion of smokers who smoked cigarettes decreased with an increase in age. Smoking prevalence was highest in those aged 30 and more years old and lowest in those aged 18-29 years. From current smokers, 35 (40.7%) reported that a lot of stress they experience at work or while carrying out their military duty in the past 12 months. Stress and peer influence or having smoker friend was the main reasons given by respondents for smoking initiation (Fig.1).

Majority of current smokers were men, unmarried, ranked non-officers, low income and low educational status. The percentages of smokers among college or university graduates were 20.9%, while the percentage of smokers among high school, junior and primary schooling were 18.6%, 33.7% and 26.7%, respectively. There was a significant difference among number of smokers and levels of education (Table 5). The smoking rate decreased with an increase in the level of education ($p<0.05$).

Fig2. Main reasons for initiating smoking among current smokers of military personnel, in Holeta and Awash Arba military academy, May 2011.



5.3 Knowledge on smoking

The responses to questions related to knowledge or perception on smoking harm showed that both smokers and non smokers had higher knowledge about smoking harm to health. More than 90% of smokers and non smokers knew about smoking harm both for smokers and non smokers. Assessing for difference in smoking harm among smokers and non smokers, there was no difference on perception to smoking.

Of participants, 46.5 % who smoked and 28.8% who do not smoke thought that harm caused by smoking is underemphasized in the media. In the meantime only those 175 (44%) of smokers and non smokers recall having received any form of smoking related health education during their service in the military. The majority of the respondents (82.6%) believed smoking placed a burden on national economy and increased health expenditure (80.4%).

The level of smoking policy in work place or premises was described by study participants, and 63 (15.8%) said (strong), a written policy with no person allowed to smoke anywhere on the premises was available. Majority of respondents, 184 (46.2%) said (average), no written policies available but allows to smoke in restricted areas, the rest 151 (37.9%) said (weak), no smoking policy was available, and people can smoke everywhere in the premises.

Fig 3. Knowledge on smoking among military personnel in Holeta and Awash Arba military academy May 2011.

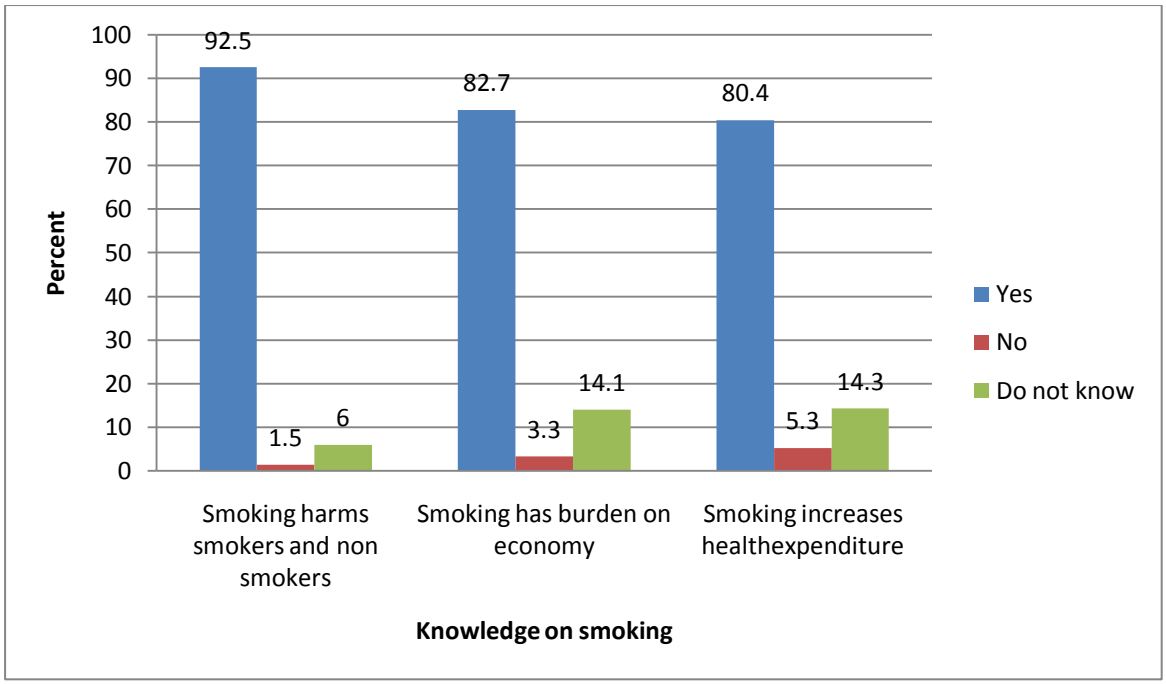


Table 2: Smoking habit characteristics of current smokers among military personnel, in Holeta and Awash Arba military academy, May 2011.

Characteristics	Frequency	Percent
Number smoke/day		
1-10 cigarettes	65	75.6
>10 cigarettes	21	24.4
Age at starting smoking		
≤ 15 years	10	11.6
16-24years	68	79.1
>25 years	8	9.3
Main reason to start smoking		
Stress	31	36
Peer influence	26	30.2
Smoking culture	12	14
Other	17	19. 8
Started to smoke since joining the military		
Yes	55	64
No	31	36
Smoking habit in duty (n=31)		
Increased	18	58.1
Decreased	7	22.6
Not changed	6	19.3

5.4 Smoking initiation

Individuals with low education, those who have low monthly income and unmarried were more likely to be smokers. Smokers reported drinking more alcohol and chewing khat than non smokers.

Many young people (predominantly men, as they have comprised the bulk of military personnel) started smoking after they joined the military. From the total current smokers 55 (64%) reported that they start to smoke after joining the military (Table2). Most common reasons the military members gave for smoking were to deal with stress, stress ranked first in 36% of respondents. The other reasons mentioned for smoking initiation among military personnel were social, such as having friends who smoke (Table 2). The underlying factors for maintaining smoking habit once after initiating were investigated; addiction and stimulation were the most common factors in 61.7% of current smokers. Majority of smokers 65 (75.6%) reported that their smoking consumption had increased when they feel pressured, anxious or stressed.

Among current smokers there were 19 (22.1%) who deployed once and for more than three months for military mission abroad while 3 (3.5%) deployed multiple times and for more than three months and the rest 4 (4.7%) deployed for less than 3 months. Most smokers smoking habit who deployed abroad changed after deployment. Majority of respondents (57.7%) said their cigarette consumption had increased and (15.4%) started smoking after deployment and the rest (26.9) their habit not changed after deployment (Table 4).

Table 3: Deployment abroad for military mission and smoking habit among military personnel in Holeta and Awash Arba military academy, May 2011.

Characteristics	Non-Smokers (n= 312)	Smokers (n= 86)
Deployment abroad		
Not deployed	268	60
Deployed once &>3 months	37	19
Deployed multiple times &>3 months	3	3
Deployed <3 months	4	4
Smoking habit (n=26)		
Started after deployment	4	15.4
Increase after deployment	15	57.7
Not changed	7	26.9

5.5 Risk factors for smoking

Comparison of socio-demographic factors between smokers and non smokers was made. There was no significance difference in age, service year and military rank. However the prevalence of smoking was associated with low education, job category, low income status and deployment abroad.

Current smoking status was significantly associated with level of education, and smoking prevalence was higher among those who had primary and junior schooling, OR (3.42, 95% CI 1.67-6.99) and (2.54, 95% CI 1.31-4.92) respectively. Smoking prevalence was higher among those whose job category was in the combat department when compared with job category in the supportive staff, OR (2.90 95% CI 1.10-7.65). Smoking initiation was also significantly associated with deployment abroad. Those military personnel who deployed for mission abroad have higher rates for smoking, OR (2.71, 95% CI 1.55-4.75) (Table 5).

Table 4: **Comparison of odds ratio among smokers and non smokers military personnel, in Holeta and Awash Arba military academy, May 2011.**

Characteristics	Smokers (n=86)	Non smokers(n=312)	Crude OR (95%CI)
Age group			
15-29 yrs	39	175	1.54(0.95-2.49)
30 or more	47	137	1.00
Education			
Primary	23	40	3.42(1.67-6.99)
Junior H.school	29	68	2.54(1.31-4.92)
Senior H.school	16	97	0.98(0.47-2.03)
College/university	18	107	1.00
Marital Status			
Never married	54	173	1.36(0.83-2.22)
Ever married	32	139	1.00
Job Category			
Combat dept.	60	182	2.90(1.10-7.65)
Adminst.staff	20	77	2.29(0.80-6.52)
Health personnel	1	9	0.98(0.10-9.40)
Supportive staff	5	44	1.00
Income/month(Br)			
<500	30	74	2.19(1.09-4.39)
501-1000	28	80	1.89(0.94-3.80)
1001-1500	13	77	0.91(0.41-2.04)
>1500	15	81	1.00
Alcohol drink habit			
Yes	50	115	2.38(1.46-3.87)
No	36	197	1.00
Khat chew habit			
Yes	13	12	4.45(1.95-10.16)
No	73	300	1.00
Deployment abroad			
Yes	26	43	2.71(1.55-4.75)
No	60	269	1.00

5.6 Predictors of smoking

Comparison of variables that were statistically significant for current smoking status on crude analysis were adjusted and results showed that military personnel with primary and junior schooling had more smokers than those who were at college or university level. AOR, (2.70, 95% CI 1.14-6.39), and (2.55, 95% CI 1.15-5.63) respectively.

As can be seen in table 6, individuals with low educational and low income status and those who were never married were more likely to be smokers. The strongest predictor of smoking status was education and income ($p<0.001$).Smokers with lower education (Primary schooling) were 2.7 times more likely to be smokers than men with high school or college education. The logistic regression analysis also shows a strong association of smoking with income AOR, (3.29, 95% CI 1.39-7.84). The logistic regression model also shows military personnel who were never married had a higher likelihood to smoke cigarette than ever married persons, AOR, (2.39, 95% CI 1.14-4.98). There was a 2.4 fold increase in the likelihood of smoking among never married individuals compared with those ever married individuals. Cigarette smoking was also significantly associated with alcohol drinking and khat chewing habits, AOR, (2.11 95% CI 1.15-3.86) and (4.09 95% CI 1.49-11.2) respectively. Deployment abroad for military mission and smoking has also shown association in the final logistic regression model AOR, (2.62, 95% CI 1.31-5.26) (Table 6).

Table 5: Predicting factors of smoking among military personnel in Holeta and Awash Arba military academy, May 2011.

Characteristics	Smokers (n=86)	Non smokers(n=312)	CrudeOR(95% CI)	AdjustedOR (95%CI)
Age group				
15-29 yrs	39	175	1.54(0.95-2.49)	0.25(0.11-0.55)
30 or more	47	137	1.00	1.00
Marital Status				
Never married	54	173	1.36(0.83-2.22)	2.39(1.14-4.98) **
Ever married	32	139	1.00	1.00
Job category				
Combat dept.	60	182	2.90(1.10-7.65)	2.65(0.96-7.35)
Adminstr.staff	20	77	2.29(0.80-6.52)	2.19(0.72-6.61)
Health personnel	1	9	0.98(0.10-9.40)	1.46(0.14-15.31)
Supportive staff	5	44	1.00	1.00
Education				
Primary	23	40	3.42(1.67-6.99)	2.70(1.14-6.39)**
Junior H.School	29	68	2.54(1.31- 4.92)	2.55(1.15-5.63)**
Senior H.School	16	97	0.98(0.47-2.03)	1.28(0.56-2.92)
Colege/university	18	107	1.00	1.00
Income/month(Br)				
< 500	30	74	2.19(1.09-4.39)	3.29(1.39-7.84)**
501-1000	28	80	1.89(0.94-3.80)	1.92(0.87-4.22)
1001-1500	13	77	0.91(0.41-2.04)	1.42(0.57-3.55)
>1500	15	81	1.00	1.00
Alcohol drink habit				
Yes	50	115	2.38(1.46-3.87)	2.11(1.15-3.86)**
No	36	197	1.00	1.00
Khat chew habit				
Yes	13	12	4.45(1.95-10.16)	4.09(1.49-11.2)**
No	73	300	1.00	1.00
Deployment abroad				
Yes	26	43	2.71(1.55-4.75)	2.62(1.31-5.26)**
No	60	209	1.00	1.00

**Significantly associated with current smoking after adjusted for age, marital status, job category, education, income, alcohol drinking habit, khat chewing habit and deployment abroad.

6. DISCUSSION

The results of this study suggest that smoking is prevalent health risk behaviour among military personnel. Overall 21.6% smoked cigarette regularly. The prevalence was lower than the smoking rate seen among US military personnel which was 33% but higher than the study made by EDHS, which was 9%. Income and education were the strongest predictors of smoking status among military personnel. Smoking initiation was also found to be associated with other socio-demographic characteristics. There was no significant association found between age, job category and smoking initiation.

Socio-demographic factors were associated with smoking initiation. This study shows that never married individuals were more smokers than ever married individuals. A cross sectional study done in Delhi shows that unmarried individuals were significantly associated with smoking in men (30). Cigarette smoking among never married individuals may be a function of exercising 'personal freedom'. Loneliness and lack of support from family might influence in maintaining the habit once initiated. Since most military personnel join the army at their younger age they might use smoking as a coping mechanism for stress.

People who drank alcohol were more likely to smoke cigarette than those who did not. Alcohol use was significantly related to increase in the likelihood of being a smoker compared with a non-smoker (25). The US Department of Defense survey on health related behaviours among military personnel indicated there was a substantial smoking and alcohol use related with stress in the armed forces (29). Finding of this study were also consistent with a cross sectional study done by K M Venkat Narayan et al. (30), and there was a significant association between smoking and alcohol use. The relation between smoking and alcohol might be due to the need to increase satisfaction from multiple substance use. Different substance use like drinking alcohol and smoking cigarette might be used side by side to relieve stress.

Jeanne M Van Loon et al. on their study on determinants of smoking status reported that, smoking initiation was found to be more prevalent among adolescents attending primary school compared with adolescents attending high school (13). A study done in USAF shows lower educational background increased the likelihood of smoking (25). Education and socioeconomic factors have been reported to be associated with smoking in diverse groups worldwide (6). Education was the strongest predictor of smoking, and men with no education were 1.8 times more likely to be smokers than men with college education (30).

This study documents Cigarette smoking was more likely to be associated with low educational status. Individuals with primary education were more likely to be smokers than individuals with college or university education. The relation between low education and smoking might be due to lack of information about smoking harm in low education peoples. Higher education individuals might have access to different health information's from different sources than persons with low educational status. Smoking may be viewed as a means for social attractiveness and to cope with stress among those population groups.

People of lower SES were more likely to start smoking, more likely to become regular smokers, and less likely to quit (29), and underscore the importance of directing interventions towards reducing socioeconomic differentials in smoking. Similar study in a cross-sectional data on smoking initiation and cessation reveals low income status was significantly related to increase risk of smoking initiation (13, 14). There was a higher smoking rates in regular Army personnel than in reservists and this might reflect socioeconomic differences(25).

This study has also found a significant association between low income status and smoking. Smoking may be perceived as a way to manage stressful life events, and low income might afford for least expenses like smoking than other needs that demand high cost.

Among those who never had smoked prior to deployment, the present study found that 15.4% initiated smoking post deployment. Besa Smith, in their study of military smoking and deployment reported that, among never smokers, smoking initiation was identified in 2.3% of military personnel who deployed abroad (26). A study done among British staff of military field hospital shows smoking rates increase with overseas deployment,and 9% of the self-declared regular smokers had started smoking for the first time after deployed overseas (27). 29% of the respondents were regular smokers before deployment. At six weeks into the deployment this number had increased to 38%. No smokers had stopped smoking within the period of the deployment. Among the total regular smokers,who smoke before deployment 56.3% said their cigarette consumption had increased, 13.7% that it had decreased and 30% said there had been no change.

Forgas et al. reported that, during their time in the Persian Gulf, 7% of their naval study population had started smoking for the first time (32).The findings differ from this study, however, in that only 29% of pre-existing regular smokers increased their consumption of cigarettes while deployed, compared with this study of 57.7%. The observed difference might be due to the size of the study population or the study design used.

7. STRENGTHS AND LIMITATIONS

7.1 STRENGTH

1. This study might help for military tobacco control efforts, and it could generate ideas for further studies.
2. Use of self administered questionnaire makes respondents to express their view freely.

7.2 LIMITATIONS

1. Lack of similar study among military made comparison difficult.
2. These findings may not be generalisable across the military, and needs similar study.

8. CONCLUSION

1. Smoking is a prevalent risk factor among military.
2. Findings of this study showed that, the overall knowledge and understanding of smoking harm among military personnel were high.
3. Smoking initiation was found to be associated with low income and low education status. Alcohol drinking and khat chewing were also associated with smoking.
4. Job related factors like deployment abroad for mission was associated with smoking.

9. RECOMMENDATION

1. Banned smoking in workplaces, designate outdoor smoking areas.

2. Anti smoking education programs should target those unmarried individuals and should focus on the health effects of smoking, alcohol drinking and khat chewing habit.

3. Effective stress management strategies may need to be implemented for military personnel to reduce the link between stress, and smoking.

4. It seems to be important to pay attention to military personnel with low education and low income status to upgrade their education and income level to prevent from becoming smokers.

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ANNNEX : QUESTIONNAIRE

AAU, COLLEGE OF HEALTH SCIENCES, SCHOOL OF PUBLIC HEALTH

INFORMATION SHEET, INFORMED CONSENT FORM AND

QUESTIONNAIRE FOR STUDY SUBJECTS.

Greeting Hello! My name is ----------I am a graduate student at AAU, school of Public health. This is a study to be conducted with the objective of assessing the prevalence of smoking and associated factors among military personnel. The study will be conducted at Holeta and Awash Arba military academy. You are one of the persons who are selected to participate in this study, therefore you are kindly requested to participate in this study and provide the information required from you. Your participation in this study is completely on voluntary basis**.** Your name will not be written in this form and will never be used in connection with any of the information you tell me. You will be asked some very personal question and you have the right to refuse from responding. Your response will be kept confidential and there will be no way of linking your individual responses to the final result of the study findings.

I would like to inform you that the responses that you provide to the questions are very essential, not only, for the successful accomplishment of the study but also for producing relevant information which will be helpful in designing preventive strategies. We would appreciate your support in responding to our questions.

001. Are you willing to participate in the study?

1. Yes ----------
2. No ----------

002. Questionnaire code number----------

003. Study area ----------

INSTRUCTION - Fill your answer on the space provided and encircle your answer for the questions given with options or choices.

I – Information on socio-demographic and economic characteristics

Ser. No	Questions	Response and coding category	R
101	How old are you?	1._____ year	
102	Sex?	1. Male 2. Female	
103	Y our Military Rank?	1. private 2. Non commissioned officer 3. Junior officer 4. Senior officer	
104	What is the number of service years in the military?	1. 1-5 2.6-10 3.11-15 4. >15	
105	What is the highest education level you have attained?	1. Primary school (1-6) 2. Junior high school (7-8) 3. Secondary high school (9-12) 4. College and university	
106	What is your religion?	1.Orthodox 2.Muslim 3.Protestants 4.Catholics	
107	What is your ethnicity?	1.Oromo 2.Amhara 3.Tigray 4.Others(specify)_____	

108	What is your marital status?	1.Single 2.Married 3.Divorced 4.Widowed	
109	What is your occupation?	1.Office work 2.Combat specialist 3.Health personnel 4.Other specify----------	
110	How much is your monthly income in birr?	1._____Birr	
111	How many family members do you have (including yourself)?	1. _____	

II Question related to khat chewing and alchol drinking

112	Do you chew Khat?	1. Yes 2. No 3. I used to chew khat before	
113	If yes, How often did you chew khat?	1. Daily 2. 2-3days per Week 3. Once a week 4- Others, specify ----------	
114	Do you have Alcohol drinking habits?	1. Yes 2. No 3. I used to drink alcohol but not now	
115	If yes, how often did you drink Alcohol during the past 30days	1. Usually/daily to weekly/(20-30)days 2. Sometimes (11-19) days 3. Occasionally(4-10) days 4. Didn't drink any alcohol in the past 30 days	

III. Questions related to smoking

116	Do you smoke cigarettes now?	1.Yes 2.No 3. I quitted smoking If you answered '2' to this question, please jump to question 144. If you answered '3' to this question, please jump to question 134.	
117	If your answer is yes, How many cigarettes do you smoke per day?	1.5 or less 2.6-10 3.11-15 4.16-20 5.over 20	
118	How old were you when you began to smoke cigarettes regularly?(smoking regularly means smoking at least one cigarette a day for 30 days or longer	1. 10 or less 2.11-15 3.16-20 4.21-25 5.Over age 25	

119	What were the main reasons that you started smoking?	1.Peer influence 2.Parental or sibling 3.To relieve stress 4.For excitement 5.Viewing smoking as socially attractive 6. The smoking culture in the Army 7.The low price of cigarettes locally	
120	"How frequently have you smoked cigarettes in the past 30 days?"	1.Not at all 2.1-5 per day 3.About one-half pack per day 4.About 1 pack per day 5.About $1^{1/2}$ packs per day 6.2 packs or more per day	
121	Do you wish you could stop smoking?	1.No 2. Yes, but I don't feel ready to quit. 3.Yes 4. I haven't been smoking for less than 12 months. 5. I haven't been smoking for more than 12 months	
122	"Do you think you will be smoking cigarettes 1 year from now?"	1.Definitely not 2.Probably not 3.Probably 4.Definitely	

123	Are you seriously intending to quit smoking?	1.Yes, in the next 30 days 2.Yes, in the next 6 months 3. No 4. Do not smoke cigarettes.	
124	Have you tried to stop smoking?	1.Yes 2.No	
125	During the past 12-months, did you make a serious attempt to stop smoking cigarettes, that is did you go for a period of time without smoking?	1.Yes, I didn't smoke for 24 hours 2.Yes, I didn't smoke for at least a week 3.No 4.Didn't smoke cigarettes in the past 12 months 5.Never smoked cigarettes	
126	If you have tried to stop smoking, who supported you in quitting?	1.Anybody supported 2.My family and friends supported 3.Health personnel's supported me 4. I taken medication	

127	What factors influenced you to continue smoking?(maintaining the habit once initiated)	1.Pleasure-taste 2.Addiction 3.Habit 4.Anxiety 5.Stimulation 6.Social rewards	
128	Have you started smoking cigarettes since joining the military?	1.Yes 2.No	
129	If your answer is yes, did your smoking habit changed over working at the military?	1.Smoking over working at the military & increased 2.Decreased 3.Not changed	.
130	Which of your parents smoke cigarette?	1.None 2.Father only 3.Mother only 4.Both parents	
131	Do you have Past mental health diagnosis or taking medication for anxiety, depression, or stress	1.Yes 2.No	
132	During the past 12 months how much stress did you experience at work or while carrying out your military duties	1.A lot 2.Some 3.A little 4.None at all	

133	When you feel pressured, stressed, depressed or anxious, how often do you engage in smoking activity (light up a cigarette)?	1.Frequently 2.Sometimes 3.Rarely 4.Never Now please jump to question 144.	
134	Have you ever smoked cigarette in the past?	1.Never, 2.Once or twice 3.Occasionally but not regularly 4.Regularly in the past	
135	"Have you smoked at least 100 cigarettes (5 packs or more) in your entire life?"	1.Yes 2.No	
136	What are the reasons for starting smoking if you have ever smoked cigarettes regularly?	1.To fit in with my friends 2.To help relieve stress 3.To help me relax or calm down 4.To relieve boredom 5.Because most people in my family smoked cigarettes 6.To be like someone I admired	
137	If you quitted smoking (How long haven't you been smoking for?	1.1-2 years 2.3-4 years 3. >4 years	
138	How many cigarettes did you smoke per day? (If you quitted smoking)	1.5 or less 2.6-10 3.11-15 4.16-20 5.over 20	
139	"Have you ever tried to stop smoking and found that you could not?"	1.Yes 2.No.	

140	How many quit attempts do you made?	1. I made at least one quit attempt. 2.I made two attempts 3.I quit completely	
141	Do you have at least 1 close friend who smokes?	1.Yes 2.No	
142	Accepting cigarette offered by one of best one's friends smoking	1.Definitely no 2.Probably not 3.Probably yes 4.Definitely yes	
143	How stressful do you believe that your life has been over the past 10 years?'	1.Not at all stressful 2.Rarely 3.Moderately 4. Extremely.	
144	Perception, cigarettes smoking is harmful	1.Definitely yes or probably yes 2.Definitely not or probably not	
145	Have you ever received any smoking prevention advice, while in the Armed Forces?	1.Yes 2.No	
146	Do you think that the media put on the agenda news about harm of smoking sufficiently?	1.Yes 2.No	
147	Do you think that consumption of cigarettes is burden on national Economy?	1.Yes 2.No 3.Do not know	
148	Do you think that sale of foreign cigarette brands is burden on national economy?	1.Yes 2.No 3.Do not know	

149	Do you think that consumption of cigarettes increases health Expenditure?	1.Yes 2.No 3.Do not know	
150	Do you think that smoking is harmful for non smoker as well as smoker?	1.Yes 2.No 3.Do not know	
151	What is the level of smoking policy in your working institution or compound?	1.(Strong) a written policy with no person allowed to smoke anywhere on the premises. 2.(Average) no written policies and allowed to smoke in restricted areas. 3.(Weak) no smoking policy	
152	Are you deployed for military mission abroad?	1- Yes 2- No	
153	If your answer is yes for what time did you stay and for how many times did you deployed?	1- For prolonged time (>3months) and once. 2- For prolonged time (>3months) and multiple times. 3- For short period of time (<3 months).	
154	If your answer is yes for question 152 select one from the following	1- I started smoking after deployment. 2- I smoked more after deployment. 3- My smoking pattern is not changed. 4- I do not smoke.	

004. Date of data collection in Ethiopian calendar: ----------

005. Approved by supervisor:

Name ----------

Sign ----------

Date ----------

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106	NÃT*ƒ	1. *`„Ê¡e 2. ƕeMU“ 3. ýa,eታ”ƒ 4. "„K=¡	
107	wN?[cw	1. *aV 2. ›T^ 3. ƒÓ_ 4. K?L "K ÃÑKî ----------	
108	¾Òw‰ G<’@ታ	1. ÁÑv 2. ÁLÑv 3. ¾ðታ 4. vKu?~ ¾V}ችuƒ	

109	e^- U”É”¨<?	1. ¾u=a ¨<eØ e^ 2. }ªÑ> ¡õM 3. ¾Ö?“ VÁ}— 4. K?L "K ÃÑKî ----------	
110	¾¨ Ñu=- uw` U” ÁIM ”¨<?	1. _____ w`	
111	¾u?}cw- w³ƒ Ÿ^e- ßU` U” ÁIM ”¨<?	1. _____	

¡õM G<Kƒ ŸÝƒ“ Ÿ›M¢M Ò` ¾}ÁÁ²< SÖÃq‹

}/I	SÖÃp	SMe	¢É
112	Ýƒ ÃpTK<?	1. ›- ?ÅpTKG< 2. pT@ ›L¨<pU 3. uòƒ ?ÅpU ’u`	

113	/SMe- ›-" ŸJ'/ uXU"ƒ e"ƒ Ñ›²? ÃpTK<?	1. uk" uk" 2. uXU"ƒ 2-3 Ñ›²? 3. uXU"ƒ ›"É k" 4. K?L "K ÃÓKì< ----------	
114	›M¢M SÖØ ÃÖ×K<?	1. ›- 2. ›ÃÅKU 3. uòƒ ?Å Ö× 'u`	
115	SMe- ›- ŸJ' u¾e"ƒ Ñ›²? ›M¢M SÖØ ÃÖ×K<?	1. ›²¨ƒ_ uk" uk" ¨ÃU uXU"ƒ /20-30 k"ƒ/ 2. ›"É Ñ›²? ?Ö×KG< /11-19 k"ƒ/ 3. ›Mö ›Mö ?Ö×KG<:: 4. uKñƒ 30 k"ƒ ¨<eØ ›M¢M SÖØ ›MÖ×G<U::	

¡õM Zcƒ c=Ò^ ŸTÚe Ò` ¾}ÁÁ²< SÖÃq‹

}/I	SÖÃp	SMe	¢É
116	›G<" c=Ò^ ÁÚdK<?	1. ›- 2. ›Ʌ ?U 3. TÚe ›lT@›KG<	

		SMe- }^ lØ` 2 ŸJ' ⍰አv¡- ¨Å ØÁo lØ` 144 ÃkØK< SMe- }^ lØ` 3 ŸJ' ⍰አv¡- ¨Å ØÁo lØ` 134 ÃkØK<	
117	SMe- ›- ŸJ' uk" U" ÁlM c=Ò^ ÁÚdK<?	1. 5 ¨ÃU u₋ታ‹ 2. 6 ⍰ eŸ 10 3. 11 ⍰ eŸ 15 4. 16 ⍰ eŸ 20 5. Ÿ20 uLÃ	
118	c=Ò^ u}Ÿታታà ¨ÃU uSÅu—'ƒ TÚe c=ËU\ ⍰አÉT@- e"ƒ 'u`? /uSÅu—'ƒ TKƒ u=Á"e 1 c=Ò^ uk" K30 k"ƒ ¨ÃU uLà TKƒ "¨</	1. 10 ¯Sƒ ¨ÃU u₋ታ‹ 2. 11 ⍰ eŸ 15 ¯Sƒ 3. 16 ⍰ eŸ 20 ¯Sƒ 4. 21 ⍰ eŸ 25 ¯Sƒ 5. Ÿ25 ¯Sƒ uLà	
119	c=Ò^ TÚe ⍰አ"Ç=ËU\ Á'dd-ƒ ª'— U¡"Áƒ U" 'u`?	1. ›Ýi ÕÅ— eK'u\˜ 2. ¨Lî ¨ÃU ¨"ÉV‹ ›Ýi eK'u\ 3. ß"kƒ" ¨ÃU ¨<Ø[ƒ KTw[É 4. Åeታ" KTÓ–ƒ 5. TÚe ⍰አ"Å Ø\ 'Ñ` ⍰አ"ÅT>ታà uTcw	

		6. uc^©~ ¨<eØ ÁK¨< ¾TÚe vIM 7. u›"vu=¨< u`"i ªÒ eKT>Ñ˜	
120	vKñƒ 3® k"ƒ U" ÁIM w³ƒ ÁK¨< c=Ò^ ›ßc¨< 'u`?	1. U"U ›LÚeŸ<U 2. 1 ⍰ eŸ 5 uk" 3. ÓTi ûŸ?ƒ ¾T>J" uk" 4. 1 ûŸ?ƒ ¾T>J" uk" 5. 1 ûŸ?ƒ ŸÓTi ¾T>J" uk" 6. 2 ûŸ?ƒ ⍰ እ" Ÿ²=Á uLÃ uk"	
121	c=Ò^ TÚe TqU ⍰እ"Åጣ_K< U™ƒ ¨ÃU }eó ›KAƒ?	1. ›ÃÅKU 2. ›- Ó" TÚe KTqU ›M}²ÒËG<U 3. ›- 4. LKñƒ 12 ¨^ƒ ›LÚeŸ<U 5. Ÿ12 ¨^ƒ uLÃ ›LÚeŸ<U::	
122	Ÿ›G<" u%EL KT>kØK¨< 1 ¯Sƒ ›ÚdKG< wK¨< ÁevK<?	1. u⍰`ÓÖ—'ƒ ›LÚeU 2. U"Mvƒ ›LÚeU 3. U"Mvƒ 4. u⍰ `ÓÖ˜'ƒ	
123	c=Ò^ KTqU uØwp ›euªM?	1. ›- uT>kØK<ƒ 30 k"ƒ 2. ›- uT>kØK<ƒ 6 ¨^ƒ 3. ›ላሰብኩም	

124	TÚe KTqU S< Ÿ^ ›É`Ñª M?	1. ›- 2. ›ላደረ ከU	
125	vKñƒ 12 ¨^ƒ l`Ö— ¨ÃU Øwp ¾J' c=Ò^ ÁKTÚe ¨ÃU ¾TqU S<Ÿ^ ›É`Ñ¨< 'u`? TKƒU K¦¨c'< Ñ>²?Áƒ ›LÚc<U 'u`?	1. ›- K24 c¯ƒ ›LÚeŸ<U 2. ›- u=Á"e KdU"ƒ ›LÚeŸ<U 3. ›ላደረ ከU 4. vKñƒ 12 ¨^ƒ ›LÚeŸ<U	
126	TÚe KTqU SŸ^ ›É`Ñ¨< Ÿ'u` T" ?ኧÑ³ ›É`ÑAKA-ƒ 'u`?	1. T"—¨<U c¨< ›Óµ—M 2. u?¦cu?“ ÕÅ™Š ›Ó²¨<—M 3. ¾Ö?“ VÁ¦™‹ ›Ó²¨<—M 4. SÉH'>ƒ ¨eÍKG<::	
127	c=Ò^ TÚe ŸËS\ u%EL U" ›Ã'ƒ G<'@? -‹ TÚe ?ኧ"ÇÁqS< Ý“ ðØaKA-ታM?	1. uTÚe ¾T>Ñ˜ ?ኧ`"ታ? 2. c<e 3. MTÉ 4. ß"kƒ 5. S'nnƒ ላለማማት 6. የ ጋደኛ ድÒõ/ማህበራዊ ህይወት	
128	¨<ƒÉ`“ Ÿ¦kLkK< ¨ÃU Ÿ¦kÖ\ Ñ>²? ËUa "¨< TÚe ¾ËS\ƒ?	1. ›- 2. ›ÃÅKU	
129	c=Ò^ ¾TÚe vl]- ¨ÃU MUÉ- ¨<ƒÉ`“	1. ¨<ƒÉ`“ ŸÑvG< ËUa ÚUbM	

	¨<eØ Se^ƒ ŸËS\ u%EL ¡K¨×DM?	2. k"dDM 3. ›M¡K¨ÖU ¨ÃU ኢ"Åuò~ "¨<::	
130	uu?¡cw- ¨<eØ ¾›Ýi G<'@ታ U' ÃSeLM?	1. U"U 2. ›vƒ w‰ 3. ¶"ƒ w‰ 4. G<K~U /›vƒ" "ƒ/	
131	vKñƒ Ñ>²?Áƒ ¾›ሊUa lSU ታS¨< 'u` ¨ÃU KÉw`ƒ Kß"kƒ" K¨Ø[ƒ /Ý"/ SÉH'>ƒ ¨eÅ¨< Á¨<nK<?	1. ›- 2. ›ÃÅKU	
132	vKñƒ 12 ¨^ƒ ue^ LÃ ¨ÃU ÓÇÏ-" c=¨Ö< U"U ÁlM ¾e^ Ý" ›ÒØVታM?	1. w²< 2. Ømƒ 3. ƒ"i 4. U"U	
133	¾Éw`ƒ' ¾¨<Ø[ƒ ¨ÃU ¾ß"kƒ eT@ƒ c=**`-ƒ U" ÁlM Ñ>²?Áƒ KTÚe ÃÇ[ÒK< ¨ÃU ÁÚdK<?	1. uw³ƒ 2. ›"Ç"É Ñ>²? 3. ›Mö ›Mö 4. U"U **ሊv¡- Ÿ²=l በሁላ ወደ Øያo 144 ÃkØK<**	
134	Ÿ›G<" uòƒ ¨ÃU vKñƒ Ñ>²?Áƒ c=Ò^ ›ßc¨< Á¨<nK<?	1. ›L¨<pU 2. ›"É ¨ÃU G<Kƒ Ñ>²? 3. ›Mö ›Mö 4. vKñƒ Ñ>²?Áƒ uSÅu—'ƒ ¨ÃU u¡Ÿታታà አልነበ ነበረ	

135	ulÃ¨ƒ- 100 ¨ÃU 5 ûŸ?ƒ c=Ò^ ›ßc¨< Á¨nK<?	1. ›- 2. ›ላ ወቅም	
136	c=Ò^ uSÅu—'ƒ ¾T>ÁÚc< Ÿ'u\ TÚe KSËS` U¡"Áƒ ¾J*ƒ U" 'u`?	1. ŸT>ÁÚc< ÕÅ™‹ Ò` KSSdcM 2. ¨<Ø[ƒ ¨ÃU Ý" Kማe,ታÑe /KSk'e/ 3. KS'""ƒ ¨ÃU KS[ÒÒƒ 4. ScL†ƒ KTe¨ÑÉ 5. w²< c-‹ uu?¦cxŠ ¨<eØ eKT>ÁÚc< 6. ¾TÅ"k¨< c¨< KSUcM	
137	›G<" TÚe "qS< KU" ÁIM Ñ>²? dÁÚc< qÃ¦ªM ¨ÃU ›LÚc<U?	1. 1 eŸ 2 ¯Sƒ 2. 3 eŸ 4 ¯Sƒ 3. Ÿ›^ƒ ›Sƒ uLÃ	
138	›G<" TÚe ›lS¨ Ÿ]' U" ÁIM c=Ò^ uk" ÁÚc< 'u`?	1. 5 ¨ÃU u ‹ 2. Ÿ6 eŸ 10 3. Ÿ11 eŸ 15 4. Ÿ16 eŸ 20 5. Ÿ20 uLÃ	
139	c=Ò^ TÚe KTqU V¡[¨< TqU ›p„ƒ 'u` ¨ÃU KTqU ›M‰K<U 'u`?	1. ›- 2. ›ÃÅKU	
140	u¾k'< ÁÚc< Ÿ'u\ KTqU U" ÁIM Ñ>²? V¡[¨< 'u`?	1. u=Á"e ›"É Ñ>²? V¡_›KG< 2. G<Kƒ Ñ>²? V¡_›KG< 3. ማኻ KSK< ›qT@›KG<	
141	u=Á"e 1 c=Ò^ ¾T>ÁÚe ¾p`ብ ÕÅ—	1. ›-	

	›KAƒ?	2. ›ÃÅKU	
142	u×U ÕÅ—- ŸJ' cѠ· ¾c=Ò^ Ówı u=cÙƒ ÃkuLK<?	ı. u`ÓÖ—'ƒ ›MkuMU 2. U"Mvƒ ›MkuMU 3. U"Mvƒ ›- 4. u `ÓÖ˜ƒ ›-	
143	vKñƒ ı® ¯S ƒ ulÃ-ƒ- U" ÁlM Ý" ¾u³v†¨< ›S,ƒ 'u\ wK¨< ÁU"K<?	ı. U"U ›M'u\U 2. ›Mö ›Mö 3. uSÖ' 4. uŸõ¦— G<'@,ƒ 5. u×U uŸõ¦— G<'@,ƒ	
144	eK c=Ò^ TÚe ÑAÍ='ƒ ÁKAƒ Ó"³u? ¨ÃU ›e¦dcw U" ÃSeLM?	ı. u`ÓÖ˜ƒ ›- ይጎዳል /ምናልባት ›- 2. u›`ÓÖ˜ƒ/ምናልባት ›Ãጎዳም	
145	uc^©~ ¨<eØ ue^ ÁK< eK c=Ò^ TÚe KSŸLŸM ¾Ö?" ƒUl`ƒ ¦cØ„ƒ Á¨<nM?	ı. ›- 2. ›,ያ ወቅም	
146	¾SÑ"— w²<H" eK c=Ò^ TÚe ÑAÍ='ƒ uum G<'@ S[Í Ãc×K< ¨ÃU Áe¦LMóK< wK¨< ÁevK<?	ı. ›- 2. ›ÃÅKU	
147	c=Ò^ TÚe ¨ÃU ¦ÖnT>'ƒ uwN?^© ›=¢*T>¨< LÃ Ý" ¨ÃU Ñ<Çƒ አለ· wK¨< ÁevK<?	ı. ›- 2. የ ለ ወም 3. ›L¨<pU	
148	¾¨<ß ›Ñ` ¾"ÓÉ eÁT@ ¨ÃU UM¡ƒ ÁL†¨< c=Ò^ S*` ¨ÃU SgØ uwN?^© ›¢*T>¨< LÃ Ý" ÃðØ^M wK¨< ÁevK<?	ı. ›- 2. ›ÃÅKU 3. ›L¨<pU	
149	c=Ò^ TÚe ¾l¡U" ¨Ü" Ÿõ Å"ÅT>ÁÅ`Ó ÁevK<?	ı. ›-	

		2. ›ÃÅKU 3. ›L¨<pU	
150	c=Ò^ TÚe K›Ýj‹ J'< KTÁÚc< ÑAÍ= SJ'<" Á¨<nK<?	1. ›- 2. ›ÃÅKU 3. ›L¨<pU	

151	በሚነሩበት ተቁም/ ግቢ ሲጋራ ሜጨስ በተመለከተ ያለዉ ፖሊሲ ወይም መሚያ ደረጃ ምን ይመስላል	1 (ጠንካራ) – ማንም ሰው በየትኛዉም የግቢ ቦታ እንዳያጨስ የሚለከል መሚያ አለ 2 (መካከለኛ) – የተፈ መሚያ የለም፡ በተወሰኑ ቦታዎች ሜጨስ ይፈቀዳል፡ 3 (ደካማ) – ሜጨስ የሚለከል የተፈ መሚያ የለም፡	
152	ለወታደራዊ ግዳጅ ከሀገር ውጭ ተሰሚተው ያወቃሉ	1 አዎ 2 አላወቅም	
153	ሚልስዎ አዎ ከሆነ ለምን ያህል ጊዚ ቆይተዋል ስንት ጊዚስ ለግዳጅ ተልከዋል	1 ለረጅም ጊዚ(ከ 3ወር በላይ) እና ለአንድ ጊዚ ብቻ 2 ለረጅም ጊዚ(ከ 3ወር በላይ) እና ከአንድ ጊዚ በላይ 3 ለአጭር ጊዚ (ከ3 ወር በታች)	
154	ለጥያቂ ቁጥር 152 ሚልስዎ አዎ ከሆነ ከሚከተሉት አንዱን ይምረጡ	1 በተሰሚዉህብት ቦታ ሲጋራ አጨስ ነበር 2 በተሰሚዉህብት ቦታ በፊት ከሜጨሰው የበለጠ አጨስ ነበር 3 በፊት አጨስ ከነበረው ማነስ ለወጥ የለወም 4 ሲጋራ አላጨስም ነበር	

004. SÖÃl ¾¦"H@Åuƒ ¯/U _____

005. ¾¦q××]¨< T[ÒÑÝ eU_____

ò`T_____

k”_____