

# Prevalence and Associated Factors of Suicidal Ideation and Attempt Among High School Adolescent Students in Fitch Town, North Shoa, Oromia Region, Ethiopia, 2012: Institutional Based Cross Sectional Study

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## Abstract

**Background:** Adolescent suicidal behavior, which is an important public health problem worldwide, is a neglected public health issue especially in middle- and low-income countries including Ethiopia.

**Objective:** The aim of the study was to assess the prevalence and associated factors of suicidal ideation and attempt among high school adolescents in Fitch town high school.

**Methods:** An institutional based cross-sectional study design was conducted from February to April/2012 involving 758 students. Data was collected using a pretested structured self-administered questionnaire containing socio-demographic variables, associated factors, suicide ideation and attempt, the method of suicide attempt and reason for their attempt. Binary logistic regression was computed to determine the relations between associated factors, and suicide ideation and attempt.

**Results:** A total of 758 subjects were participated with a response rate of 95.3%. The prevalence of life time suicidal ideation and attempt were 20.5% [males=17.6%, and females=23.8%] and 12.5% [males=11.1%, females=14.0%], respectively. Being female, having no social support, being disappointed with school results that lead failure in study, having family history of suicide, having felt lonely and feeling of hopeless that stopped doing usual activities seemed to be associated with suicide Ideation and attempt. Life-time experience of being alcohol drunk and khat chewing were positively associated with suicide Ideation but not with suicide attempt. Most adolescents used hanging as a method of attempting suicide in both sexes with higher number of preference in males, but poisoning was preferred by females.

**Conclusion:** The prevalence of suicide ideation and attempt were high which shows a significant public health issue among school going adolescents that requires a great emphasis.

**Keywords:** suicide Ideation, suicide attempt, adolescent

## 1. INTRODUCTION

Adolescent suicidal behavior, which is an important public health problem worldwide, is a neglected public health issue especially in middle- and low-income countries. The World Health Organization (WHO) reported that in 2000, more than 800,000 people died of suicide around the world.<sup>(1)</sup> This make suicide among the top five causes of mortality in the 15- 19 year age group. In many countries it ranks first or second as a cause of death among both boys and girls in this age group. However, in some countries there is an alarming increase in suicides among children aged less than 15, as well as in the 15- 19 year age group.<sup>(2)</sup>

Internationally, suicide rates range from highs of more than 25 per 100,000 persons in Scandinavia, Switzerland, Germany, Austria, the eastern European countries, and Japan, to fewer than 10 per 100,000 in Spain, Italy, Ireland, Egypt, and the Netherlands.<sup>(3)</sup> The rates of suicide among adolescents and young adults have increased considerably over the last decades.<sup>(4)</sup> Not only that mental health as a whole is a neglected area of health research and practice in most of sub-Saharan African countries where the largest burden of morbidity is from infectious diseases. This even occurs despite the fact that some mental health problems may arise from infectious diseases.<sup>(5)</sup>

Suicidal ideation occurs in all age groups and with greatest frequency in children and adolescents with severe mood disorders. Completed suicide occurs about five times more often in adolescent boys than in girls, although the rate of suicide attempts is at least three times higher among adolescent girls than among boys. Suicidal thoughts and suicidal threats are more common than suicide completion.<sup>(6, 7)</sup>

The suicide rate for females in the same age group is increasing more slowly than that for males. It is the third leading cause of death in those 15 to 24 years of age, after accidents and homicides, and attempted suicide in this age group number between 1 million and 2 million annually. Most suicide now occurs among those aged 15 to 44, which is rare before puberty.<sup>(3)</sup> It is conceptualized as a multidimensional construct consisting of both the thought of suicide and the degree of intensity and frequency accompanying the thought. Intensity and frequency can range from fleeting thoughts occurring one time to obsessive thoughts accompanied by serious planning.<sup>(6)</sup>

The analyses of the prevalence and correlates of suicidal ideation yielded comparisons and contrasts among the five sub-Saharan countries namely Botswana, Kenya, Tanzania, Uganda and Zambia among boys and

girls. There are many possible factors related to the culture and lifestyle which could account for these variations, one of which could be greater exposure to certain risk factors because of the adverse sub-Saharan Africa issues and challenges. <sup>(8)</sup>

Risk situations and events that may trigger suicide attempts or suicide are: situations that may be experienced as injurious (without necessarily being so when evaluated objectively); vulnerable children and adolescents may perceive even trivial occurrences as deeply injurious and react with anxiety and disordered behavior, while suicidal young people perceive such situations as threats directed against their self image and suffer from a sense of wounded personal dignity; family disturbances; separation from friends, girl-/boyfriends, classmates, etc.; death of a loved one or other significant person; termination of a love relationship; interpersonal conflicts or losses; legal or disciplinary problems; peer-group pressure or self-destructive peer acceptance; bullying and victimization; disappointment with school results and failure in studies; high demands at school during examination periods; unemployment and poor finances; unwanted pregnancy, abortion; infection with HIV or other sexually transmitted diseases. <sup>(2)</sup>

The method of the suicide attempt influences the morbidity and completion rates, independent of the severity of the intent to die at the time of the suicidal behavior. The most common method to attempt suicide in children and adolescents is the use of hanging, poisoning, slashing, and shooting. <sup>(6, 7)</sup> Moreover, information on suicide behavior, including ideation, attempts and completed suicides in Africa is lacking. Although not all suicidal ideation materialize in to suicide attempts or suicide, it is the first step on the path to suicide. <sup>(9)</sup> Therefore this study was carried out to determine the prevalence and associated factors of suicide ideation and attempt among high school adolescents determining such information is useful in understanding the burden of mental health to adolescent health. This information may also be useful in targeting scarce mental health resources in the provision of intervention that reduce the occurrence of suicide in Ethiopia.

#### **Magnitude of suicide ideation**

Different studies revealed different findings. The life time prevalence of suicide ideation conducted in metropolitan Mexico City gathered in 2005 among a representative household survey of 3,005 adolescents' ages 12-17years <sup>(12)</sup>, and in rural northeastern Uganda among adolescents (aged 10-19 years;  $n = 897$ ) <sup>(20)</sup> reported lifetime suicide ideation to be 11.5%, and 6.1% respectively. Onset of suicidality started around age 10 and at age 15 showed the highest hazards. Suicide ideators were more likely to report a plan (3.9% lifetime plan) and attempt within the first year of onset of ideation. <sup>(12)</sup>

A cross sectional studies conducted among countries showed that the magnitudes of suicide ideation were different. Accordingly the 12 months prevalence of thinking about committing suicide among different study setting was cited as follows respectively. In university of Colombia in Bogota 13% (4.4% at the time of the interview) among 197 students less than 18 years old <sup>(13)</sup>, in Guyana among 1197 school going adolescents 18.4% (14.9% males and 21.6% females) in 2004 <sup>(14)</sup>, in Kut City (Iraq) 8.3% (89 out of 1067) among 1067 students having suicidal behavior (suicidal ideation and attempts) <sup>(17)</sup>, in Nigeria 20% among 1429 youth aged 10-17 years <sup>(18)</sup>, in Zambia 31.3% (males = 31.1%; females = 31.4%) among 1970 in-school adolescents using Global School-Based Health Survey in 2004 <sup>(9)</sup>, Kenya (27.9%, in 2003), Botswana (23.1%, in 2005), Uganda (19.6%, in 2003) and Tanzania (11.2%, in 2006) among 13 to 16 years of age respectively <sup>(3)</sup>, and 21.6% (21.3% males and 23.5% females) among school-going adolescents in rural Uganda in 2003. <sup>(5)</sup>

#### **Magnitude of suicide attempt**

The study conducted in metropolitan Mexico City gathered in 2005 among household survey of 3,005 adolescents' ages 12- 17years old, reported 3.1% a lifetime suicide attempt <sup>(12)</sup> whereas a 12 months prevalence of attempt in New Zealand secondary school students among a total of 9570 randomly selected 9- 13 year-old students was estimated to be 7.7% (4.7% of males and 10.5% of females) <sup>(15)</sup>. Another study among 1429 Nigerian youth aged 10-17 years reported 12% had attempted suicide in the last year. <sup>(18)</sup> A cross-sectional survey conducted in Ethiopia (Butajira) among 10,468 adults of a rural and semi-urban community reported lifetime suicide attempt to be 3.2%. Of these, 63% were women. The most frequent age of attempt was between 15 and 24 years and the frequency of attempt decreased with increasing age. <sup>(7)</sup> And the survey among high-school students in Addis Ababa in 1989/90 academic calendar reported 14.3% of the adolescents having attempted suicide. <sup>(21)</sup> Another survey conducted in Addis Ababa in 1994 showed lifetime prevalence of suicidal attempt to be 0.9 %. Most of the attempts (66%) occurred when subjects were under 25 years of age. <sup>(22)</sup>

#### **Associated factors of suicide Ideation/ Attempt**

Males were less likely to seriously consider committing suicide than females. History of depression was positively associated with suicidal ideation, while having close friends and understanding parents were negatively associated with suicide ideation respectively). <sup>(5, 12, 13, 14)</sup> Being male: being <14 years old, having been drunk. Worried, and sad or hopeless in the past 12 months were positively associated with suicidal ideation. Loneliness appeared to be protective. <sup>(9)</sup> Loneliness and worry were positively associated with suicide ideation. <sup>(5)</sup>

Studies conducted in Ethiopia revealed associated factors in different speculations. Some of them stated hanging and poisoning were the most frequently reported methods of attempting suicide. Marital or family

conflict was the most frequently reported cause for attempting suicide and most of those who reported this cause were women. Men were more likely to use hanging to attempt suicide than women. <sup>(7, 22)</sup> There were no significant associations between suicide attempt and sex, ethnicity or religion and also marital status, ethnicity, and religion were not associated with suicidal ideation. Current suicidal ideation was more common in men than women. There was a 68% decrease in the risk of ideation in the 60 years of age and above group compared to the 15-24 year group. <sup>(22, 17, 21)</sup> Suicide attempts were strongly and linearly associated with hopelessness, grade, and heavy alcohol intake. <sup>(17, 21)</sup>

The suicide rate, however, is rising most rapidly among young persons, particularly males 15 to 24 years of age, and the rate is still rising. <sup>(11)</sup>

Due to the relatively few studies conducted in Ethiopia among adolescents, there is little known about the prevalence and predictors of suicidal ideation and attempt. Therefore, this study contributes additional information regarding this issue for either psychiatric intervention at school level, for policy makers or may help as a base line data for further investigation.

## **2. METHODS**

### **2.1. STUDY DESIGN AND SUBJECT**

An institutional based cross-sectional study design was conducted on high school students among 9<sup>th</sup> through 12<sup>th</sup> grades in Fitch Town at 2012. Study period was from February to April /2012. Fitch Town is a zonal town located in north shoa of Oromia region at a distance of 110km from Addis Ababa. The total population of students currently enrolled in high school (9<sup>th</sup> to 12<sup>th</sup>) is estimated to be 3303 of whom 1513 are female and 1790 are male. There is one high school, three elementary schools in the town.

### **2.2. measurements**

Data was collected using the Composite International Diagnostic Interview (CIDI), a standardized questionnaire, which was adopted from the World Health Organization. Data was collected using a pretested structured self-administered questionnaire containing socio-demographic variables, associated factors, suicide ideation and attempt, the method of suicide attempt and reason for their attempt. The questionnaire was translated from English to local languages and then back translation was also done to check for consistency. It was checked for validity.

#### **2.2.1. Data quality control:**

Pretest was conducted among 37 samples to ensure for practicability, reliability and suitability of the method in Muka Turi high school. Close supervision was held during data collection and each data was checked for completeness by the principal investigator. Training was given to the facilitators on data collection tools and sampling technique.

### **2.3. STATISTICAL ANALYSIS**

Data were analyzed using computer soft ware and coded Data were checked, cleaned and entered into epi.INFO version 3.5.1 and then exported into Statistical Package for the Social Sciences (SPSS window version 20) for analysis. The estimation of the prevalence of suicide ideation and attempt, descriptive statistics, using frequencies, mean and standard deviation was performed. Bivariate analysis was performed to determine each of the factors and how they are associated with suicidal ideation and attempt. Only factors that have been found to be significantly associated with suicidal ideation and attempt during bivariate analysis were entered into the multivariate logistic regression. A p value of < 0.05 was considered as statistically significant and p-value of Hosmer and Lemeshow test was used to test the goodness of fit of the model.

Ethical clearance was obtained from the ethical board of Gondar University and Amanuel Mental Specialized Hospital and permission was obtained from the concerned. Informed Consent to participate was obtained from the school directors for those who were under 18 years and verbal consent was obtained from those who were above 18 years. Study participants were kept to sit far apart to keep confidentiality. Those who were found to have suicide ideation and attempt were given appropriate intervention.

## **3. RESULTS**

### **3.1. Socio-demographic characteristics**

Total of 758 high school adolescents were participated in the study in 2012. Of 758 adolescent students 722 responded to the question on suicide ideation and attempt. Therefore the overall response rate was 95.3 %.

Among the respondents 386 (53.5 %) were males and the remaining were females. The age range of the study participants were from 14 to 26 years old. The mean age was 17.79 yrs  $\pm$  1.8 standard deviation.

Six hundred seventy eight (93.9 percent) of the study participants were Orthodox Christian follower and 682(94.5%) were single. The majorities i.e. 96.7 % of the respondents were Oromo by Ethnicity. Two hundred eighty nine (40 percent), Two hundred fifty six (35.5 percent), Ninety seven (13.4 percent) and eighty

(11.1 percent) were enrolled currently in grade Ninth, Tenth, Eleventh and Twelfth respectively. Five hundred twenty three (72.4 percent) of the study participants were living with their family and 164(22.7%) were living alone. (Table 1)

Table 1. socio-demographic characteristics of high school adolescents in Fitch Town, North Shoa of Oromia Region, 2012.(n=722)

Explanatory variables		Numbers	Percent (%)
Sex	Male	386	53.5
	Female	336	46.5
Age	<15	67	9.3
	15-19	529	73.3
	20-24	123	17.0
	≥25	3	0.4
Religion	Orthodox	678	93.9
	Muslim	12	1.7
	Protestant	23	3.2
	Others	9	1.2
Marital status	Married	25	3.5
	Single	682	94.5
	Divorced/widowed	15	2.0
Ethnicity	Oromo	698	96.7
	Amhara	20	2.8
	Gurage	2	0.3
	Others	2	0.3
Grade	9 <sup>th</sup>	289	40.0
	10 <sup>th</sup>	256	35.5
	11 <sup>th</sup>	97	13.4
	12 <sup>th</sup>	80	11.1
With whom they live	with family	523	72.4
	with spouse	22	3.1
	Alone	164	22.7
	Others	13	1.8

### 3.2. Prevalence of Suicide Ideation and Attempt

The life time prevalence of suicide ideation among 722 respondents was 20.5% (148) [males=17.6%, females=23.8%] and the magnitude of suicide attempt was 12.5% (90) [males=11.1%, females=14.0%]. From the study participants 5.8% (43) of them had planned to commit suicide in their life time experience. One month estimation of suicide ideation and attempt was determined to be 4.4 % ( 32) and 1.9 % ( 14) respectively. (For detail see table 2.)

Table 2. Frequency distribution of suicide ideation, plan and attempt among high school adolescent students in Fitch Town, North Shoa of Oromia Region, 2012. (n=722)

	Number		Percent (%)		Male		Female	
	Number	Percent (%)	number	Percent (%)	number	Percent (%)		
<b>Suicidal Ideation</b>								
Yes	148	20.5	68	17.6	80	23.8		
No	574	79.5	318	82.4	318	76.2		
Total	722	100.0	386	100.0*	336	100.0*		
<b>Suicidal plan</b>								
Yes	42	5.8	23	6.0	19	5.7		
No	680	94.2	363	94.0	317	94.3		
Total	722	100.0	386	100.0*	336	100.0*		
<b>Suicide Attempt</b>								
Yes	90	12.5	43	11.1	47	14.0		
No	632	87.5	343	88.9	289	86.0		
Total	722	100.0	386	100.0*	336	100.0*		
<b>Suicidal Ideation in the last 1 month</b>								
Yes	32	4.4	14	3.6	18	5.4		
No	690	95.6	372	96.4	318	94.6		
Total	722	100.0	386	100.0*	336	100.0*		
<b>Suicide Attempt in the last 1 month</b>								
Yes	14	1.9	4	1.0	10	3.0		
No	708	98.1	382	99.0	326	97.0		
Total	722	100.0	386	100.0*	336	100.0*		

\*percentage calculated within sex.

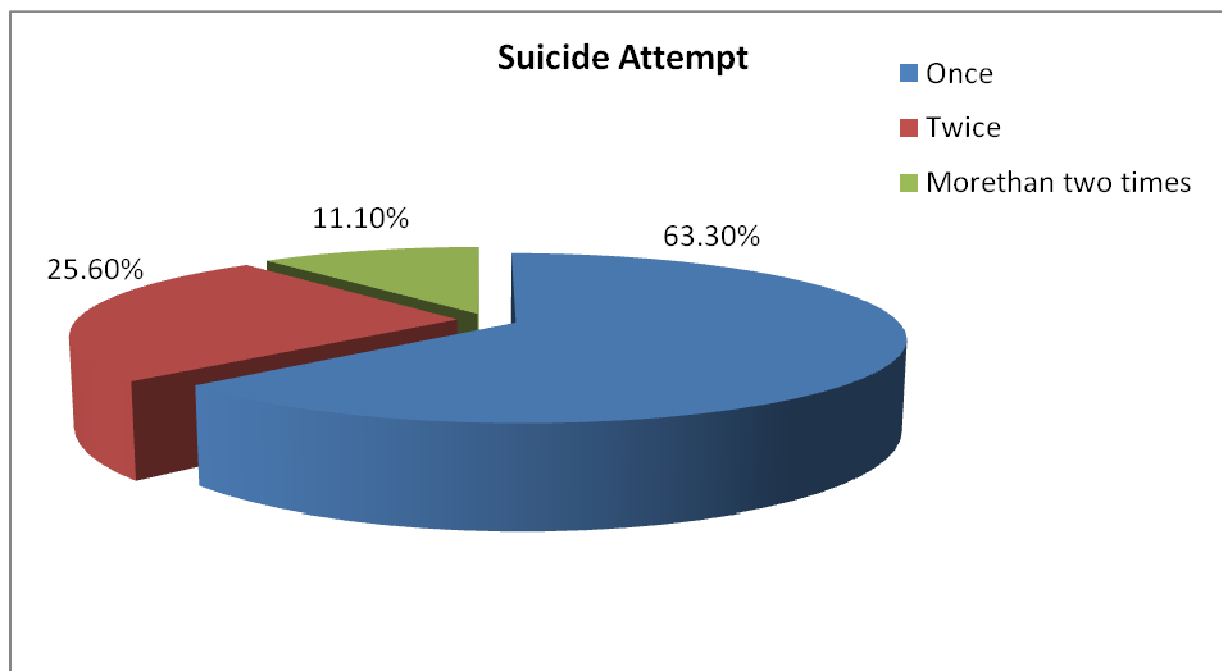


Figure 1. Percentage distribution of frequency of suicide attempt among high school adolescent students in Fitch Town, North Shoa of Oromia Region, 2012. (n=90)

From the respondents participated, the majority 63.3% (57) of them attempted to end their own life once, where as 25.6% (23) of them attempted to commit suicide two times and the rest attempted more than two times. (For detail see Fig.2 above)

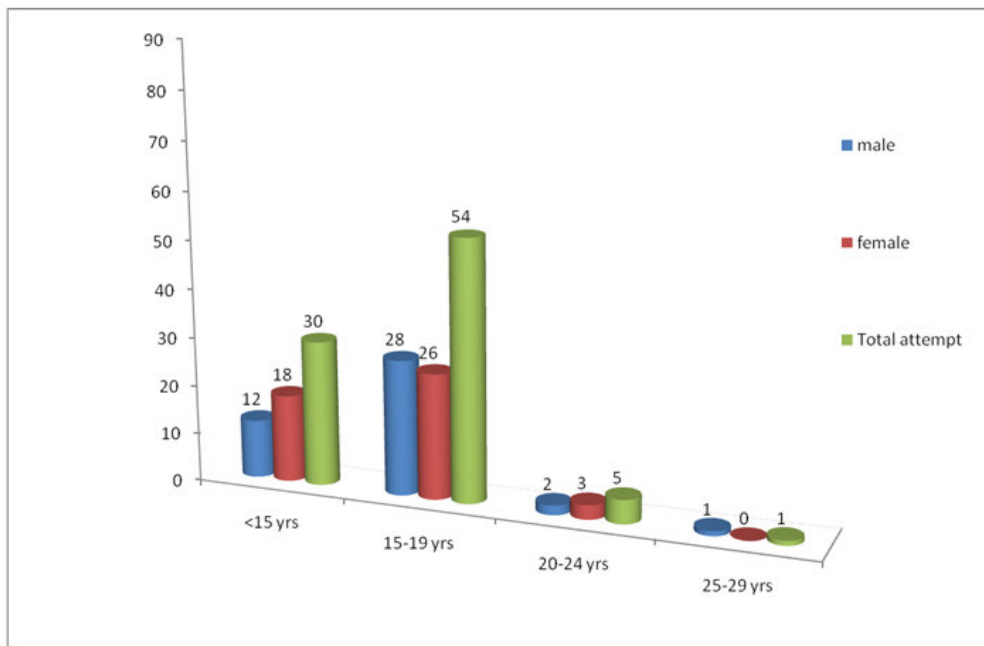


Figure 2. Distribution of suicide attempt by age among Male and Female high school adolescent students in Fitch Town, North Shoa of Oromia Region, 2012.(n=90)

The above figure indicates that from the study participants who admitted attempting suicide, females (26) and males (28) students attempted to commit suicide most in the age group of 15-19 years of age.

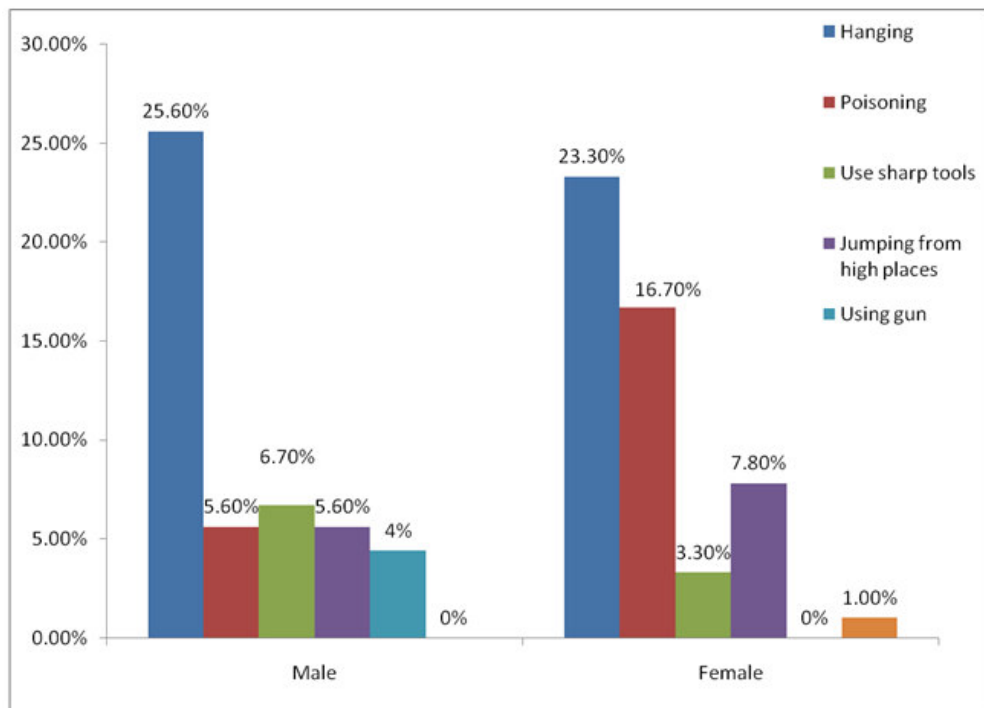


Figure 3. Percentage distribution of Methods used during suicide attempt by sex among high school adolescent students in Fitch Town, North Shoa of Oromia Region, 2012.(n=90)

Most male and female students attempted committing suicide using hanging method [25.6% (23/90) and 23.3% (21/90)] respectively. Also females used poisoning method almost 3.5 times more than male respondents [16.70% (15/90)]. (See Fig.4)

From the study participants 68 of them either made a serious attempt to kill themselves and it was only luck that they did not succeed or they tried to kill themselves, but knew that the method they used was not fool-proof and hence these two assumptions indicates that their attempt was actual or it was an intent to die. Whereas, the rest 22, who answered as their attempt was a cry for help but they did not intended to die indicated that they had engaged in suicide gesture.

Family conflict 25.6% (23), Economic burden /financial loss 12.2% (11), Death in the family 7.8% (7), Academic failure 40.0% (36), and Physical illness 7.8% (7) were the reasons provided by the respondents for their suicide attempt. (For detail see table 4.)

Table 3. Shows frequency distribution of suicide gesture and reason for suicide attempt among high school adolescent students in Fitch Town, North Shoa of Oromia Region, 2012.(n=722)

		Male	Female	Percent(%)	Total
Which of the following three statements most accurately describe your attempt?	-I made a serious attempt to kill myself and it was only luck that I did not succeed	8	20	31.1	28
	-I tried to kill myself, but knew that the method was not fool-proof	24	16	44.4	40
	-My attempt was cry for help. I did not intended to die	11	11	24.5	22
	Total	43	47	100.0	90
Can you tell the reason(s) for the attempt?	Family conflict	11	12	25.6	23
	Economic burden/ Financial loss	6	5	12.2	10
	Death in family	3	4	7.8	7
	Mental illness/problem	3	1	4.4	4
	Physical illness	4	3	7.8	7
	Academic failure	15	21	40.0	36
	Others	0	2	2.2	2
Total	43	47	47	90	

### 3.3. Factors associated with suicide ideation and attempt

#### 3.3.1. Bivariate analysis

From the bivariate analysis of suicide ideation in relation to each explanatory variable sex, grade, ethnicity, alcohol use, khat use, social support, disappointed with school results, family history of suicide, feeling of hopeless, loneliness, and worry were variables that fulfilled the minimum requirement (0.2 level of significance in this study) for further assessment and entered in to multivariate logistic regression. On the other hand age, religion, marital status, with whom they were living, having close friends, and cigarette use were not significant at 0.2 level of significance and were excluded from further analysis.

From the bivariate analysis of suicide attempt in relation to each explanatory variable alcohol use, khat use, having close friends, social support, disappointed with school results, family history of suicide, feeling of hopeless, loneliness, and worry were variables that fulfilled the minimum requirement (0.2 level of significance in this study) for further assessment and entered in to multivariate logistic regression. On the other hand sex, grade, ethnicity, age, religion, marital status, with whom they were living, and cigarette use were not significant at 0.2 level of significance and were excluded from further analysis.

#### 3.3.2. Multivariate analysis of suicide ideation and explanatory variables

The multivariate logistic regression which controls the effect of confounding variables was used by taking all covariates into account simultaneously for suicide Ideation. Analysis was done after adjusting for sex, grade, ethnicity, social support, disappointed with school results, family history of suicide, feeling of hopeless, loneliness, worry, alcohol drinking, and khat chewing. A p.value of 0.2 was tolerated to export to the multivariate analysis and a p.value of 0.05 was stated to be statistically significant.

Accordingly, female students contemplate about suicide more likely than male students. [AOR=2.051, 95% CI (1.339, 3.141)]. Those students who were enrolled in grade ten, eleventh and twelfth were less likely to think about suicide when compared with that of ninth grade students. [AOR=0.560, 95% CI (0.347, 0.903)], [AOR=0.219, 95% CI (0.103, 0.466)], [AOR=0.489, 95% CI (0.251, 0.956)], respectively. Those who had no social support have higher chance of thinking about suicide than those who had support [AOR=2.541, 95% CI (1.655, 3.901)].

Reported of being disappointed with school results that lead in failure in study [AOR=2.598, 95% CI (1.659, 4.070)], and having family history of suicide [AOR=3.616, 95% CI (1.235, 10.586)], remained positively associated with suicide ideation while ethnicity was not associated with suicide ideation. Reported life-time experience of being alcohol drunk [AOR=2.185, 95% CI (1.250, 3.817)] and khat chewing [AOR=3.955, 95% CI (1.471, 10.634)] were positively associated with suicide Ideation.

Furthermore, having felt lonely [AOR=1.914, 95% CI (1.232, 2.974)] and feeling of hopeless that stopped doing usual activities [AOR=2.494, 95% CI (1.596, 3.897)] remained positively associated with suicide ideation, while reporting of being worried that could not sleep at night [AOR=1.262, 95% CI (0.818, 1.945)] was not associated with the outcome. (Table 5)

Table 5. Bivariate and Multivariate Logistic regression results between Suicide Ideation and Associated Factors among high school adolescent in Fitch Town, North Shoa of Oromia Region, 2012.(n=722)

Variables	Suicide Ideation		Crude OR	(95% CI)	Adjusted OR (95% CI)	
	Yes	No				
Sex	Male	68	318	1.00		1.00
	Female	80	256	1.461	(1.017, 2.100)	<b>2.051 (1.339, 3.141)**</b>
Grade	9 <sup>th</sup>	73	216	1.00		1.00
	10 <sup>th</sup>	45	211	0.631	(0.416, 0.958)	<b>0.560 (0.347, 0.903)*</b>
	11 <sup>th</sup>	11	86	0.378	(0.191, 0.748)	<b>0.219 (0.103, 0.466)***</b>
	12 <sup>th</sup>	19	61	0.922	(0.516, 1.645)	<b>0.489 (0.251, 0.956)*</b>
Ethnicity	Oromo	140	558	1.00		1.00
	Amhara/ Gurage	8	16	1.993	(0.836, 4.750)	1.508 (0.578, 1.508)
Social support	Yes	75	397	1.00		1.00
	No	73	177	2.183	(1.511, 3.153)	<b>2.541 (1.655, 3.901)***</b>
Disappointed with school results	Yes	110	285	2.935	(1.961, 4.394)	<b>2.598 (1.659, 4.070)***</b>
	No	38	289	1.00		1.00
Family history of suicide	Yes	11	8	5.681	(2.242, 14.393)	<b>3.616 (1.235, 10.586)*</b>
	No	137	566	1.00		1.00

Table 5. Bivariate and Multivariate Logistic regression results between Suicide ideation con't.....

Variables	Suicide ideation		Crude OR	(95% CI)	Adjusted OR (95% CI)	
	Yes	No				
Loneliness	Yes	88	187	3.035	(2.093, 4.402)	<b>1.914 (1.232, 2.974)**</b>
	No	60	387	1.00		1.00
Feeling of hopeless	Yes	87	173	3.306	(2.277, 4.799)	<b>2.494 (1.596, 3.897)***</b>
	No	61	401	1.00		1.00
Worry	Yes	87	240	1.985	(1.375, 2.865)	1.262 (0.818, 1.945)
	No	61	334	1.00		1.00
Alcohol Drinking	Yes	34	48	3.268	(2.015, 5.302)	<b>2.185 (1.250, 3.817)**</b>
	No	114	526	1.00		1.00
Khat chewing	Yes	10	13	3.127	(1.343, 7.281)	<b>3.955 (1.471, 10.634)**</b>
	No	138	561	1.00		1.00

\*P value is significant at P<0.05, \*\* P value is significant at P<0.01

\*\*\* P value is significant at P<0.001 P.value of Hosmer and Lemeshow Test=0.475

### 3.3.3. Multivariate analysis of suicide Attempt and explanatory variables

The multivariate logistic regression which controls the effect of confounding variables was used by taking all covariates into account simultaneously for suicide attempt. Analysis was done after adjusting for social support, disappointed with school results, having close friends, family history of suicide, feeling of hopeless, loneliness, worry, alcohol drinking, and khat chewing. A p.value of 0.2 was tolerated to export to the multivariate analysis and a p.value of 0.05 was stated to be statistically significant.

Likewise, having close friends was not associated with suicide attempt. Whereas, those who had no support from family/ friends or relatives attempt suicide almost four times higher than students who have support [AOR=4. 287, 95% CI (2. 583, 7. 116)].

Furthermore, we found that high school adolescent students who were disappointed with school results were more likely to attempt suicide [AOR=3. 172, 95% CI (1. 764, 5.706)]. Students who had history of suicide in their family tried to end their life three times more likely [AOR=3.230, 95% CI (1. 116, 9.348)] than those



who have no history of suicide in their family and also being loneliness and feeling sad or hopelessness remained positively associated with suicide attempt [AOR=2. 487, 95% CI (1. 457, 4. 244) and AOR=2. 382, 95% CI (1. 393, 4. 072)] respectively.

Being reporting worried that could not sleep at night was not associated with the outcome. Unlike in suicide ideation, reported life-time experience of being alcohol drunk and Khat chewing were not associated with suicide attempt. (See Table 6)

Table 6. Bivariate and Multivariate Logistic regression results of Suicide Attempt and Associated Factors among high school adolescents in Fitch Town, North Shoa, Oromia Region, 2012. (n=722)

Variables	Suicide Attempt		Crude OR	(95% CI)	Adjusted OR	(95% CI)
	Yes	No				
Social support	Yes	34	438	1.00	1.00	
	No	56	194	3.719	(2.351, 5.881)	<b>4.287 (2. 583, 7. 116)***</b>
Disappointed with school results	Yes	72	323	3.827	(2.231, 6.563)	<b>3. 172 (1. 764, 5.706)***</b>
	No	18	309	1.00	1.00	
Family history of suicide	Yes	8	11	5.508	(2.153, 14.091)	<b>3.230 (1. 116, 9.348)*</b>
	No	82	621	1.00	1.00	
Loneliness	Yes	59	216	3.665	(2.303, 5.834)	<b>2. 487 (1. 457, 4. 244)**</b>
	No	31	416	1.00	1.00	
Feeling sad/hopeless	Yes	57	203	3.650	(2.304, 5.783)	<b>2. 382 (1. 393, 4. 072)**</b>
	No	33	429	1.00	1.00	
Worry	Yes	55	272	2.080	(1.323, 3.269)	1. 154 (0. 685, 1. 946)
	No	35	360	1.00	1.00	
Have close friends	Yes	79	584	1.00	1.00	
	No	11	48	1.694	(0.845, 3.398)	2.085 (0.934, 4.656)
Alcohol Drinking	Yes	19	63	2.417	(1.368, 4.270)	1.373 (0.711, 2.653)
	No	71	569	1.00	1.00	
Khat Chewing	Yes	6	17	2.584	(0.991, 6.737)	2.271 (0.722, 7.149)
	No	84	615	1.00	1.00	

\*P value is significant at P<0.05, \*\* P value is significant at P<0.01

\*\*\* P value is significant at P<0.001 P.value of Hosmer and Lemeshow Test=0.964

#### 4. DISCUSSION

This study found the life time prevalence of suicide ideation and attempt among 722 high school adolescent students in the year 2012 G.C. The prevalence of suicide Ideation was 20.5% (148) [males=17.6%, females=23.8%] and there was a difference in the magnitude among male and female. That might be due that females accepted more house hold burden and they were having low socio-economic status. Of the study participants who had seriously thought about suicide, 5.8% (43) of them had planned to commit suicide in their life time experience.

The prevalence of current study was higher when compared with other community based studies conducted in other parts of Ethiopia. A study in Addis Ababa among adult population reported suicidal ideation to be 2.7%.<sup>(22)</sup> Perhaps, the discrepancy might be due to population and study setting difference. Another study conducted among patients who attended the Psychiatry clinic of Gondar University Hospital was 307(64.8%) having suicidal ideation.<sup>(24)</sup> In fact their finding was not comparable with our finding due to the fact that their study was conducted in a psychiatric population where high risk individuals were evaluated as compared to school based studies.

A Global School-Based Student Health Survey (GSHS) conducted in different African countries showed variability in the prevalence of suicidal ideation. Zambia had the highest prevalence of suicidal ideation (31.9%) among all students, followed by Kenya (27.9%), Botswana (23.1%), Uganda (19.6%) and Tanzania (11.2%).<sup>(3)</sup> But our finding was lower than the prevalence of Zambia, Kenya, and Botswana and higher than that of Tanzania. The variation was probably due to population difference and large sample size they used. On the same way, the last 12 months prevalence of suicide ideation in Guyana among school going adolescents reported, 18.4% (14.9% males and 21.6% females).<sup>(14)</sup> But this study was not comparable with our finding because it was a one year suicide ideation and our study was life time prevalence.

The study conducted in metropolitan Mexico City among adolescents' aged 12 to 17years, reported lifetime suicide ideation to be 11.5%, whereas 3.9% reported a lifetime plan<sup>(12)</sup> and the discrepancy might be

due to the study setting and population difference and relatively small sample size we had used.

Female students contemplate about committing suicide twice more likely than male students. [AOR=2.051, 95% CI (1.339, 3.141)]. That might be due that females receive more house hold activities than males and they are highly vulnerable for physical and sexual abuse. The other possible justification was that women were likely to be emotionally hurt because openly defending their right is not culturally approved. Not only that but also they are likely to be demotivated and discouraged from education. Low socio-economic status of females may also play a role. Studies conducted in Rural Uganda and Guyana 2004 showed that males were less likely to seriously consider committing suicide than females<sup>(5, 14)</sup> which was consistent with current finding.

Grade Ten, Eleventh and Twelfth were negatively associated with suicide ideation [AOR=0.560, 95% CI (0.347, 0.903), AOR=0.219, 95% CI (0.103, 0.466), AOR=0.489, 95% CI (0.251, 0.956)], respectively. The possible justification might be change of language from mother tongue to foreign language and most of them came from rural areas therefore it might be due separation from their family. In another way they cope with new social, academic, and personal pressures. This finding is in accordance with study conducted in Addis Ababa.<sup>(22)</sup>

Having no social support was positively associated with suicide ideation [AOR=2.541, 95% CI (1.655, 3.901)]. The possible justification for contemplating about suicide might be due to their feeling that their existence was a burden to others such as family members. The results of other study also revealed that weak social ties and low support from friends or relatives had been significantly associated with suicidal ideation.<sup>(23)</sup>

Reported being disappointed with school results that lead failure in study [AOR=2.598, 95% CI (1.659, 4.070)], was significantly associated with suicide ideation. This could be explained by the fact that they may use suicide as a means of escape from sufferings. This finding was consistent with other studies in sub-saharan Africa and kut city.<sup>(3), (17)</sup> Having family history of suicide [AOR=3.616, 95% CI (1.235, 10.586)], remained positively associated with suicide ideation which was in line with the study conducted elsewhere.<sup>(6)</sup>

Reported life-time experience of being alcohol drunk [AOR=2.185, 95% CI (1.250, 3.817)] and Khat chewing [AOR=3.955, 95% CI (1.471, 10.634)] were positively associated with suicide ideation. Similar finding was also reported by other studies.<sup>(3, 5, 9)</sup>

Furthermore, having felt lonely [AOR=1.914, 95% CI (1.232, 2.974)] and feeling of hopeless that stopped doing usual activities [AOR=2.494, 95% CI (1.596, 3.897)] remained positively associated with suicide ideation, while reporting being worried that could not sleep at night [AOR=1.262, 95% CI (0.818, 1.945)] was not associated with the outcome. Study in rural Uganda also suggested that loneliness, worry were positively associated with suicide ideation. Sadness/feeling of hopeless was significantly associated with suicidal ideation among students across sub-Saharan countries in Kenya, Tanzania and Uganda.<sup>(3, 5, 9, 17)</sup>

The prevalence of life time suicide attempt calculated in this study was 12.5% (90) [males=11.1%, females=14.0%] with higher magnitude of attempt among female gender. The possible reason was stated in the above paragraphs. From those who were attempted to take their life, 37.8% (38) of them had planned to commit suicide in their life time experience. The survey that was done to estimate life-time prevalence in Ethiopia among high-school students in Addis Ababa reported 14.3% of the adolescents having attempted suicide.<sup>(21)</sup> But our study finding is slightly smaller. Perhaps this discrepancy may be due to the large sample size they used and availability of means of suicide attempt.

Even though there was a difference in the study population, the lifetime prevalence of suicidal attempt among adults in Addis Ababa was 0.9%. Most of the attempts (66%) occurred when subjects were under 25 years of age,<sup>(22)</sup> which support the current finding. Another previous research conducted in Ethiopia (Butajira) among adults of a rural and semi-urban community showed the lifetime suicide attempt to be 3.2%, in addition, this survey declared that most frequent age of attempt was between 15 and 24 years.<sup>(7)</sup> These findings showed that in the age group of 15-24 year more adolescents were suffering from such event and the assumption goes with the current findings.

We also found that most adolescents used hanging as a preferable method in attempting suicide in both sexes with higher number of preference in male. But poisoning was highly preferred by females than male adolescent students. Hanging was the most common method in attempting suicide and poisoning was also the second most commonly used method. Similarly studies suggested that hanging and poisoning were the most frequently reported methods of attempting suicide in other community based Ethiopian findings conducted in Butajira and Addis Ababa<sup>(22, 7)</sup> and this was consistent with our studies.

For those who attempted suicide, 40.0% justified the underlying reason as being related to their academic failure, others reported family conflict and economic burden /financial losses. Another study elsewhere declared that marital or family conflict was the most frequently reported cause for attempting suicide and most of those who reported were women.<sup>(7)</sup> The study that was conducted in Gondar university Hospital stated the reason for their attempt to be related with their current illness and social problems.<sup>(24)</sup> In fact there was a great difference in the study population as well study setting.

Those who had no support attempt suicide almost four times than students who had social support [AOR=4.287, 95% CI (2.583, 7.116)]. Possible reason was tried to be stated in suicide ideation section.

Furthermore, we found that high school adolescent students who were disappointed with school results were more likely to attempt suicide [AOR=3.172, 95% CI (1.764, 5.706)]. Students who had history of suicide in their family tried to end their life three times more likely than students having no family history of suicide [AOR=3.230, 95% CI (1.116, 9.348)] and no significant associations were observed between suicide attempt and family history of suicide in the study conducted in Addis Ababa<sup>(21)</sup> but other studies reported that, there was significant associations. Possible reason for the discrepancy might be population difference and their awareness towards suicide, the coping mechanism of the study subjects, and probably the sample size used.

Being loneliness and feeling sad or hopeless remained positively associated with suicide attempt [AOR=2.487, 95% CI (1.457, 4.244) and AOR=2.382, 95% CI (1.393, 4.072)] respectively. The study conducted in Addis Ababa strongly and linearly associated suicide attempt with hopelessness.<sup>(21)</sup>

Unlike in suicide ideation, reported life-time experience of being alcohol drunk and Khat chewing were not associated with suicide attempt. On contrary to this study finding, other researches stated as people who had problem drinking reported lifetime suicide attempt more often than others.<sup>(7, 12)</sup>

## 5. LIMITATION OF THE STUDY

### Limitation:

- ✓ Institutional based studies could not address those adolescents outside the institution
- ✓ Cause and effect relationship was difficult to establish by cross sectional studies.
- ✓ Information/ selection bias may occur during data collection.

## 6. CONCLUSION

The prevalence of suicide ideation and attempt were high showing a significant public health issue among school going adolescents that requires a great emphasis. Being female, having no social support, being disappointed with school results that lead in failure in study, having family history of suicide, having felt lonely and feeling of hopeless that stopped doing usual activities seems to be significant with suicide ideation and attempt, while being in grade Ten, Eleventh and Twelfth seems to be protective in suicide ideation. Life-time experience of being alcohol drunk and Khat chewing were positively associated with suicide Ideation but not with suicide attempt.

Most adolescent students used hanging as a preferable method in attempting suicide in both sexes with higher number of preference in male, but poisoning was highly preferred by females. Therefore, the information obtained could make a meaningful contribution to suicide prevention program either at institution or at community level.

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