

Prevalence Of Suicidal Ideation And Associated Risk Factors Among College Students: Eritrea

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Research article

Keywords: suicidal ideation, college, prevalence, risk factor

Posted Date: March 18th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-17587/v1>

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Abstract

Suicidal ideation is a common medical term and refers to the thoughts one has about taking his or her own life, with some degree of intent. Although a person may experience suicidal thoughts, it does not mean he or she is in imminent danger of committing suicide. It is influenced by many risk factors like gender, age, depression, family support and others. Suicidal ideation and suicidal attempt are significant among college students. Suicide ideation is considered to be an important precursor to later attempted and completed suicide [52] and is of major public health significance. So the purpose of the study is to assess the prevalence of suicidal ideation and its risk factors among 7 Eritrean colleges. This study was conducted on 466 college students and employed a cross-sectional study design with stratification sampling. Students self-completed a questionnaire which included a brief demographic section and a section with MID, HADS, AUDIT, MSSPS and MSSSI. The data was analyzed using SPSS version 20. The overall occurrence of suicidal ideations in the study sample was 25.9%. The risk factors identified in the study were depression, anxiety, alcohol abuse and perceived social support, attending religious activity and satisfaction with the credit hours assigned were significantly associated with suicidal ideation and they were found to be as protective factors. While no significant differences among those with suicidal ideations in terms of gender, religion, study program, where you live. The results of this study highlight the importance of establishing prevention and intervention programs on university campuses to create more awareness about suicide and offer more education to students on this topic in general, as well as to specifically offer counseling and support to students suffering from suicidal ideations.

Background

Suicide is a serious public health problem, responsible for 1.48% of deaths worldwide [1]. The burden is much higher in adolescents and young adults, accounting for 8.64% of deaths among 20–24 years [1] and is the third leading cause of death among 15–24 years [2]. Among groups University and college students affected more than the general population that suicide is the second leading cause of death among college students [3]. Suicide requires significant attention both from the public as well as the government but always too low priority is given from both governments and policy-makers [4]. Therefore, today's institutions such as families, communities, governments and religious organizations need to have better knowledge of national, regional and local suicide risk factors and patterns that would improve the effort prevention in dealing with suicide cases [5, 6]. Suicide is a final task of behavior that is probably the end result of interactions of several different factors. It has defined as an act of intentionally terminating one's own life, that is an individual carefully planned and killed her/himself [7]

Suicidal behavior is a process from suicidal thoughts to completed action [8]. Suicidal behavior is a range of behaviors that include thinking about suicide (or ideation), planning for suicide, attempting suicide and suicide itself [9]. According to Nock And Prinstein [10] suicidal behavior is classified more specifically into three categories: Suicide Ideation, which refers to thoughts of engaging in behavior intended to end one's life; Suicide Plan, which refers to the formulation of a specific method through which one intends to die; and Suicide Attempt, which refers to engagement in potentially self-injurious behavior in which there is at least some intent to die.

“Suicidal ideation (thought) “ is a medical term the thought about the desire, intent, and method for committing suicide and it range greatly from fleeting thoughts, to extensive thoughts, to detailed planning, role playing (e.g., standing on a chair with a noose), and incomplete attempts, which may be deliberately constructed to not complete or to be discovered, or may be fully intended to result in death, but the individual survives (e.g., in the case of a hanging in which the cord breaks). Suicide ideation is considered to be an important precursor to later attempted

and completed suicide and is of major public health significance. And clearly, suicidal ideation and suicide attempts are of significant concern in college students [11]

Figure 1 suicidality process

There are two types of suicidal ideation: active and passive.

Active suicidal ideation involves a current desire and plan to die. Passive may also include a desire to die but is not accompanied with a plan to end one's life. These thoughts are common among young people. It is estimated that between 22% and 38% of adolescents have thought about suicide at some point in their lives, with between 12% and 26% reporting having had such thoughts in the previous year [12]

Majority of young people who experience suicidal ideation will not go on to take their lives, however any report of suicidal ideation should be taken seriously. Even when it is mild, and is only reported on one occasion, suicidal ideation has been found to be associated with clinically significant symptoms of depression [13]. Furthermore, young people experiencing persistent, severe suicidal ideation are at increased risk of attempting suicide [14]. But young people are typically reluctant to seek professional help for mental health problems [15] and as suicidal ideation increases, their intention to seek help decreases further [16, 17]. So Health and other professionals who have on going contact with young people (e.g. GPs, teachers, school counselors, sports coaches, and youth workers) are well-placed to detect risk.

RISK FACTORS

A risk factor is any characteristic or event that increases the likelihood of suicidality. Suicidality includes suicidal ideation, Para suicide, and suicide. Researchers have attempted to explain the reason people engage in suicidal behavior. However, there is not one single factor but a host of factors working together that best explain suicide. In general, the more risk factors that are present, the higher the likelihood that some form of suicidality will be experienced. Risk factors are so common among college students that it is difficult to single out any one as more detrimental than another. Risk is also difficult to assess because not all college students react to specific risk factors in the same way. One person might partake in excessive drinking and drug use but never express suicide ideation whereas another person who occasionally drinks might have one bad day and that bad experience sends him or her over the edge.

Depression is the top risk factor, but there are various other mental health disorders that can contribute to suicide, including bipolar disorder and schizophrenia. The risk factors for suicidal ideation can be divided into 3 categories: psychiatric disorders, life events, and family history.

Methods

Study design and study population

This study was conducted using analytical cross-sectional study design by employing quantitative approach, to determine the prevalence and associated predictors of suicidal ideation. It was carried out from November 2017 to December 2017 in the 7 academic collages of Eritrea ; Asmara College of Health Sciences, Orotta school of Medicine and Dentistry , Hamelmalo College of Agriculture, College of Marine Sciences and technology and Eritrea Institute of Technology (college of education , science and engineering) . The target population was undergraduate college students who were attending school at the time of study with a total number 6929.

Sampling design and Allocation

All college students were divided into seven strata according to their respective colleges. From each stratum, participants were selected randomly based on the proportion allocated. A representative stratified sampled was extracted with initially determined margin of error 4.5% and confident interval 95% and proportion of 50%.

SAMPLE SIZE OF PARTICIPANTS BY COLLEGES

COLLEGES	NUMBER
Asmara College Health Science	146
College Of Science	64
College Of Education	64
College Of Engineering	74
Hamelmallo Agricultural College	70
College Of Marine Science And Technology	24
Orotta School Of Medicine And Dentistry	24

Data Collection procedures and data analysis

After data collection, each questionnaire was checked for completeness and code was given before data entry. Data was analyzed using SPSS version 20. Descriptive statistics such as frequencies, percentages, as well as Analytical statistics such as chi-square, logistic regression analysis were used to assess the prevalence and predictors of suicidal ideation; using 5% as a level of significance.

Result

A. DEMOGRAPHIC DATA

**TABLE 2:-SOCIO DEMOGRAPHIC CHARACTERISTICS OF ERITREAN COLLEGE
STUDENTS (N=460)**

VARIABLE		N	%
SEX	MALE	236	51.3%
	FEMALE	224	48.7%
ETHNICITY	TIGRINA	409	88.9%
	TIGRE	31	6.8%
	NARA	2	0.4%
	KUNAMA	2	0.4%
	SAHO	4	0.9%
	AFAR	1	0.2%
	BILEN	10	2.2%
	RASHAYDA	1	0.2%
	BIDHAWYET	0	0%
	STUDY PROGRAM	DEGREE	295
DIPLOMA		165	35.9%
ZOBA	MAEKEL	310	67.4%
	GASH BARKA	27	5.8%
	ANSEBA	56	12.2%
	DEBUB	56	12.2%
	NORTHERN REDSEA	10	2.2%
	SOUTHERN REDSEA	1	0.2%
AGERANGE	18 TO 20	245	53.3%
	21 TO 23	199	43.3%
	24 TO 26	12	2.5%
	ABOVE 27	4	0.9%

In this study there were Four hundred sixty six (466) students participated. Out of these, 6 participants did not complete 75% of the questioner's portion so we take as non-response which is 1.3%. Out of the 460 respondents 236(51.3%) were males. The age range of the participants was 18 to 30, with mean age (SD) of 20.55 (\pm 1.8).

WHERE DO YOU LIVE	DORMITORY	257	55.9%
	FAMILY	203	44.1
WITH WHOM DO YOU LIVE	BOTH	316	68.7%
	MOTHER	60	13.0%
	FRIEND	7	1.5%
	RELATIVE	65	14.2%
	ON THEIR OWN	12	2.6%
SUBSTANCE USE	ALCOHOL	172	37.3%
	CIGARETTE	4	0.9%
	TOBACCO	2	0.4%
	NONE	262	57.0%
	ALL	9	2.0%
	ALCOHOL AND CIGARETTE	11	2.4%
Religious activity	ALWAYS	158	34.3%
	SOMETIMES	279	60.7%
	NEVER	23	5.0%
Pocket money	<100	164	35.7%
	101-500	249	54.3%
	501 – 1000	38	8.3%
	>1000	8	1.7%

B. PREVALENCE OF THE OF THE DEPENDENT AND INDEPENDENT VARIABLES

The prevalence of suicidal ideation was 25.9 % (119), College of education had the highest prevalence of moderate suicidal thought (35.9%), followed by college of engineering and science by 33.8% and 28.1% respectively but college of Orotta had the lowest (12.5%) moderate suicidal thought while it has the highest severe suicidal thought 4.1% which is the same as college of marine 4.1%. **(Table 3)** .From the 236 male respondent 28% has moderate suicidal ideation and only 1% has severe ideation. Out of 224 female respondents 22% have moderate suicidal ideation and only 1% has severe suicidal ideation. **(Figure4)**. Based on Major Depression Inventory (MDI) 12.8% of the respondents were found to have mild depression while 6.9% and 9.9% of the respondents have moderate and severe depression respectively. Based on AUDIT 5.2% and 5.7% of the respondents were found to have harmful alcohol consumption and alcohol dependency respectively. Based on HADS 39.3% of the respondents lay on the borderline while 26.8% have abnormal anxiety level. Based on MSPSS respondents of the study perceive social support mainly from family (21.66) rather than from friends (21.19) and significant other (20.42). **(Table5)**. College of agriculture was found to have the highest prevalence of alcohol abuse (20%), followed by College of engineering and College Of education by 18.3% and 10.9% respectively. **(Figure 6)** College of agriculture was found to have the highest prevalence of depression level (52.9%), followed by College of engineering and College of Marine Science

and Technology by 42.3% and 37.5% respectively (**figure 7**). College of engineering was found to have the highest prevalence of abnormal anxiety level (33.9%), followed by College of agriculture (30%) and College Of Science and college of education which accounts same percentage 29.7 % (**figure 8**).About eight percent of students from college of education do not participate in any religious activity while 7% and 6.3% of students from college of engineering and Asmara College of health science do not participate in any religious activity respectively. (**figure 9**).College of marine, engineering and Asmara College of health science have the highest prevalence of dissatisfaction with the credit hours assigned, 41.7% 33.8% and 29.9% respectively. (**Figure 10**) .Majority (95%) of the respondents having moderate suicidal ideation were in the age range 18 to 23. Majority (60%) of the participants having severe suicidal thoughts were in the age range 21 to 23 and the rest 40% lay on the range from 18 to 20. (**Figure 11**)

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TABLE 3:- PREVALENCE OF SUICIDAL IDEATION BY COLLEGE (N=460)
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	NORMAL		MODERATE		SEVERE		TOTAL%
EDU	41	64.1%	23	35.9%	-	-	100%
SCI	44	68.8%	18	28.1%	2	3.1%	100%
ENG	47	66.2%	24	33.8%	-	-	100%
ACHS	116	81%	27	19%	-	-	100%
OSMD	20	83.3%	3	12.5%	1	4.1%	100%
COMSAT	17	70.7%	6	25%	1	4.1%	100%
HAC	56	80%	13	18.6%	1	1.4%	100%

Figure 4. PREVALENCE OF SUICIDAL IDEATION BY GENDER (N=460)

TABLE 5:- PREVALENCE OF DEPRESSION, ALCOHOL AND ANXIETY (N=460)

		<i>N</i>	<i>PERCENT (%)</i>
DEPRESSION	No Depression	324	70.4%
	Mild	59	12.8%
	Moderate	32	6.9%
	Severe	45	9.9%
ANXIETY	Not Anxious	156	33.9%
	Borderline	181	39.3%
	Abnormal	123	26.8%
ALCOHOL	No Or Low	410	89.1%
	Harmful	24	5.2%
	Alcohol-Dependency	26	5.7%
		N	MEAN
SUPPORT	Subscale Family	460	21.66
	Subscale Friends	460	21.19
	Subscale Significant Other	460	20.42

Figure 6:- Prevalence of Alcohol usage by College (N=460)

Figure 7:- Prevalence of Depression by College (N=460)

Figure 8:- Prevalence of Anxiety by College (N=460)

Figure 9: - prevalence of religious activity among college students (N=460)

Figure 10:- Prevalence of satisfaction with Cr. Hr. assigned (N=460)

Figure 11:- Prevalence of suicidal ideation by age range (N=460)

C. STATISTICAL ASSOCIATION

Table 12: PEARSON'S CORRELATION TEST OF THE VARIABLES WITH SUICIDAL IDEATION

(N=460)

		satisfaction with Cr.Hh Assigned	Depression	Anxiety	Alcohol	social support subscale family	social support subscale friends	social support subscale significant other
Suicidal ideation	Pearson Correlation	.175**	.409**	0.215**	.333**	-.273**	-.181**	-.253**

****—significant at p< 0.01**

The variables were significantly correlated with suicidal ideation using Pearson's correlation at p-value < 0.01. Perceived social support (FAM, FRI, SO) were negatively correlated with suicidal ideation while the rest were positively correlated. And of the independent variables depression and alcohol were highly correlated with suicidal ideation. (Table 12)

Table 13:- Prevalence of Anxiety, Alcohol and Depression in Students with or with No Suicidal Thought (N=460).

		Suicidal Ideation		Chi-Square(Sig)
		No	Yes	
		N (%)	N (%)	
Depression	No	263(81.2%)	61(18.8%)	54.069**
	Mild	44(74.6%)	15(25.4%)	
	Moderate	20(62.5%)	12(37.5%)	
	severe	14(31.1%)	31(63.9%)	
Anxiety	No	130(83.3%)	26(16.7%)	23.156**
	Borderline	139(76.8%)	42(23.2%)	
	anxious	72(58.8%)	51(41.5%)	
Alcohol abuse	No	322(78.5%)	88(21.5%)	38.51**
	Harmful	10(41.7%)	14(58.3%)	
	dependency	9(34.6%)	17(65.4%)	
Religious practice	Regularly	120(75.9%)	38(24.1%)	11.86**
	Sometimes	211(75.6%)	68(24.4%)	
	Never	10(43.5%)	13(56.5%)	
Satisfaction with the Cr assigned	Yes	265(77.3%)	78(22.7%)	6.88**
	No	75(65%)	41(35%)	
COLLEGES	EDU	41(64.1%)	23(35.9%)	12.77*
	SCI	44(68.8%)	20(31.2%)	
	ENG	47(66.2%)	24(33.8%)	
	ACHS	116(81.1%)	27(18.9%)	
	OROTTA	20(83.3%)	4(16.7%)	
	MARINE	17(70.8%)	7(29.2%)	
	AGRI	56(80%)	14(20%)	

*—significant at $p < 0.05$ **—significant at $p < 0.01$

Out of the mildly, moderately, severely depressed respondents 25.4%, 37.5%, 63.9% have suicidal ideation respectively .Out of the anxious respondents 41.5% have suicidal ideation respectively. Out of the respondents who have harmful alcohol usage and alcohol dependency 58.3% and 65.4% have suicidal ideation respectively. Therefore Suicidal ideation increases with increasing severity of depression, anxiety and alcohol usage.

From the total respondents who never attend religious activity 56.5% have suicidal ideation while from the total respondents who regularly attend religious activity 24.1% have suicidal ideation. Similarly from total respondent who were not satisfied with the Cr. Hours assigned 35% have suicidal ideation. **(Table 13)**

TABLE 14:- Bivariate and multivariate analysis of Factors associated with suicidal ideation among Eritrean College students (N= 460)

Variables		Crude odds ratio(COR)[CI]	Adjusted odds Ratio(AOR)
Sex	Male®	Ref	
	Female	0.695 (0.46-1.06)	
Study program	Degree®	Ref	
	Diploma	1.294 (0.843-1.988)	
Where do you live	Dormitory®	Ref	
	Out side	0.977 (0.64-1.487)	
Religion	Christian®	Ref	
	Muslim	1.18 (0.599-2.34)	
Religious activity	Regularly	0.244(0.99-0.600)	0.258[0.093-0.711]**
	Sometimes	0.248(0.104-0.591)	0.286[0.107-0.766]*
	Never®	Ref	
Satisfaction	Yes®	Ref	
	No	1.833(1.162-2.892)**	1.43(0.855-2.411)#
Depression	No depression®	Ref	
	Depressed	2.352(1.41-3.9)**	1.913(1.151-3.18)*
Anxiety	Not anxious®	Ref	
	Anxious	2.802(1.79-4.380)**	1.786(1.06-2.987)*
Alcohol	No or low®	Ref	
	Alcohol	5.970(3219-11.074)**	3.394(1.684-6.843)**
	Abuse		
Age		1.127(1.008-1.259)*	1.108 (0.978-1.254)#
Support	Family	0.903(0.867-0.94)*	0.939(0.891-0.990)*
	Friend	0.940(0.903-0.977)*	1.02(0.972-1.08)
	Significant other	0.921(0.891-0.953)*	0.95(0.90-0.996)*

— * Significant at p-value 0.05 — ** Significant at p-value 0.01 — # Significant at p- Value 0.2 —

Predictor variables were analyzed using the bivariate logistic regression analysis and associations found to be statistically significant at a p-value <0.05 using chi square test and multivariable analysis is used to determine which factor explained or predicted suicidal ideation among Eritrean college students. Factors predicting suicidal ideation were depression, anxiety, alcohol. While religious activity, perceived social support and satisfaction with the

credit hours assigned were found to have significant association with suicidal ideation as a protective factor. We found no association between suicidal ideation and sex, where they live, study program and their religion.

Students who had depression were 1.913 times higher to have suicidal ideation than those who were not depressed. (AOR 1.913 (1.151 – 3.18)). Students who had depression and not endorsed for alcohol were 1.913 times higher to have suicidal ideation than those who were not depressed. (COR 2.352(1.41-3.9)). Study participants who were anxious were 1.786 times higher to have suicidal ideation as compared to those who were not anxious. (AOR 1.786(1.06-2.987)). Respondents who have alcohol abuse were 3.394 times higher to have suicidal ideation as compared to those who have no or normal alcohol use. (AOR 3.394(1.684-6.843))

Respondents who replied that they were not satisfied by the credit hour assigned were 1.833 times more likely to have suicidal ideation than those who were satisfied with the credit hour assigned. (COR 1.833(1.162-2.892))

Respondents in our study who attend religious activities were 74.2 % less likely to have suicidal ideation than respondents who never attend religious activity (AOR 0.258(.093-0.711))

Respondents who perceived social support more by family, the odds of suicidal ideation decreases by 6.1%(AOR 0.939) and Respondents who perceive social support more by significant other, the odds of suicidal ideation decreases by 5%(AOR 0.95).while perceived support from friend was not statistically significant.

And also with increasing the age by one unit the probability of suicidal ideation increases by 1.127 times. **[Table 14]**

Discussion

This study was conducted to determine the prevalence of suicidal ideation and associated factors among Eritrean college students. Variables such as gender, age, , religious activity, Anxiety, depression and alcohol abuse, etc. –will have some influence whether we are aware of it or not . For example the study performed by Kirkpatrick-Smith et al. (1991) attempted to test the predictiveness of life stresses, hopelessness, and reasons for living, loneliness, depression, and alcohol abuse on suicide. [33]

This study was conducted on 466 college students consisting 88.9% from the Tigrinya ethnic group. The participants were from all the regions and majority was from the central region (80%). There were 236 male and 224 female respondents. The age of the respondents ranged from 18 to 36, with the highest ranged 18 to 23 (95.5%). About Sixty four percent 64.1% of the participants were degree program and most (90.2%) of the participants were Christian. Ninety five percent of the respondents attended religious activity. 68.7% of the students lived with both of their parents and 55.8% of the participants lived in the school dormitory.

Forty three percent of the participants had had substance use; 37.4% had only alcohol consumption, 0.9% had only smoked cigarette, 0.4% had tobacco use and 2.4% had used alcohol and cigarette. , this can be due to high levels of stress associated with adjusting to a new social environment and increased academic demands.

By studying the effects of these variables, we can start comparing results and start understanding which factors may influence people to have suicidal ideations more than others. The results of this study also show that 29% of males and 23% of females have suicidal ideation but no significant differences were observed in suicide ideation. The factors that had a significant association to suicidal ideation were Anxiety; Depression, Alcohol abuse,

attending religious activity, satisfaction with the credit hours assigned, and perceived social support (FAM, FRI and SO). Among these factors, depression had the highest prevalence across all colleges (in all the students who had ideation and not). On the other hand variables such as where do you live, sex , study program, type of religion were not significantly associated with suicidal ideation.

In our study the prevalence of suicidal ideation was 25.9%, this high prevalence could be due the high prevalence of the predicting factors among those students with suicidal ideation. A study conducted in Ethiopia had a prevalence of 19.9%. However, this finding was low compared with results of similar studies in other African countries. For example, it was much lower than the prevalence of suicidal ideation reported among Botswana students (47.5%). Similarly, higher prevalence suicidal ideation has been reported among South African medical students (32.3%). Despite of the above findings the prevalence of 10.7% was reported for university student in China and Portugal [24, 25].

Colleges of education have the highest (35.5%) prevalence of suicidal ideation followed by college of engineering and college of science with prevalence of 33.8% and 31.2% respectively. This was mainly due to higher prevalence of the predicting variables and lower preventive factor when compared to the other colleges. Even though the prevalence of suicidal ideation in colleges of marine (29.2%) and agriculture (20%) was lower than these colleges, it was still unacceptably high and this might be due to the high prevalence of anxiety , depression , setting of the colleges and their geographical location.

In our study males had higher (29%) prevalence of suicide ideation than females (23%) but it was not found to be statistically significant. A study conducted in Ethiopia in January 2018 reported the prevalence of females (21.5%) was not significantly different to that of males (19%) [24]. This is, probably, mainly due to low or no prejudice/stigma between female and male. A Similar study conducted in south Africa reported that 16% of males had suicidal ideations and the difference between male and female students were not significant [29] While study conducted by public health students among adult Students in four countries (Jordan, Lebanon, Morocco and UAE) reported that all of the countries, with the exception of the UAE, reported a higher prevalence of suicide ideation among female than males. But the difference between male and female students were significant with regard to differences in occurrences in suicide ideation, In Lebanon, males were 0.75 times less likely than females to have thoughts of suicide, and males in Morocco were 0.6 times less likely than females to have thoughts of suicide[49]. A study done in Uganda revealed that the prevalence of suicide ideation in males was 17.2% and in females was 22.1%. Gender was only found to be significantly associated with suicidal ideation [50]. These significant differences might be due to culture.

The present study revealed that higher suicidal ideation was found among students with age range 18-23 (95.8%) and based on regression analysis as age increases by one year the risk of suicidal ideation is 1.127 times more. This might be due to the fact that during the age period 18-24 years of age severe psychiatric disorders typically manifest themselves and disrupt a student. [51] Similarly a study conducted among U.S medical students revealed that higher suicidal ideation was found among students with age range 25-30 (12.7%) and they were 1.62 times higher to have suicidal ideation as compared to the lower age [48]. However, a study conducted in Ethiopia showed that there were no significant association between age and suicidal ideation [24].

In this study the most frequently recognized risk factor was alcohol abuse (62%) followed by depression (42.6%) and anxiety (41.5%). While in a study conducted by Hamline University, the most frequently recognized risk factor was anxiety 61.9%, followed by depression (60.6%), alcohol and drug abuse (58.2%) [44]. A study conducted across

sub-Saharan countries (Kenya, Tanzania, Uganda) the most frequent recognized risk factor was sadness, followed by feeling lonely [50].

Suicidal ideation increases with increasing severity of depression. As seen in this study among mildly depressed, moderately depressed and severely depressed groups the suicidal ideation was 25.4%, 37.5% and 63.9% respectively (AOR=1.913 CI=1.151 - 3.18), this might be due to high levels of stress associated with adjusting to a new social environment, increased academic demands and could be due to the effect of high dose of alcohol consumption. Similarly a study conducted in India showed that suicidal ideation increases with the severity of depression. Among mildly, moderately, severely and extremely depressed groups the suicidal ideation was 23.1%, 40.6%, 68.35%, and 84.2% respectively[42]

This study revealed that from the respondents 5.2% and 5.7% were placed under harmful alcohol use and alcohol dependent respectively whereas a study reported by Dorian A. Lamis in Sri Lanka, 19.3% and 9.3% were placed under harmful alcohol use and alcohol dependent respectively[34] and in both the studies alcohol was significantly associated with suicidal ideation. This high dependency rate could be due to absence of strong disciplinary measures.

In this study alcohol abuse was significantly associated with suicidal ideation. Students who abuse alcohol were 3.394 times more at risk to have suicidal ideation than those who did not (AOR=3.394 CI=1.684-6.843)

Similarly, a study conducted in Ethiopia found that alcohol abuse was significantly associated with suicidal ideation with AOR 1.6 [24]. Likewise Students who consumed alcohol in Morocco had a higher associated risk of suicide ideation 2.31 times more likely to have thoughts of suicide than students who did not consume alcohol) than students who consumed alcohol in Lebanon (1.43 times more likely) [49].

Anxiety was significantly associated with suicidal ideation in this study. About 42% of the respondents who were anxious have suicidal ideation (AOR1.786 CI 1.06-2.987, $X^2=23.156$, $p=0.001$). This could be due to the fact that school time is one of the influential times in the individuals' future life so they might get frustrated in order to line up their futures in a good way; this might make them feel anxious. Similarly a study conducted at Emory university reported anxiety was significantly associated with suicidal ideation, from the total respondents who have suicidal ideation 92.6% were anxious($x^2=15.2$)[26].

In this study the mean value of the subscales of MSPSS of family, friend and significant other was 21.66, 21.19 and 20.42 respectively. This means they perceive support mainly from family. The regression analysis revealed that subscale family and significant other were significant predictors for suicidal ideation (AOR=0.939 CI 0.891-0.990) and AOR=0.95 CI 0.90-0.996) but not for subscale friend (AOR=1.02 CI 0.972-1.08)).The social relationships with family can act as a buffer towards suicidal behaviors. This is because these students (those who perceive social support from their family) do feel an obligation to stay alive for of their family. While other study conducted in India reported that the mean value of the subscales of MSPSS of family, friend and significant other was 23.99, 21.12, and 21.38 respectively this means they perceive support mainly from family. And based on regression analysis they found that subscale family was a significant predictor for suicidal ideation (AOR =0.369) while not for subscales friend and significant other [46]. However a study conducted by Lamis and Lester found that study participants were found to have decreased suicidal thoughts with healthy peer relationships [43].

In general social support increases a feeling of belongingness and thus reduces the risk of suicidal thought [47]

In this study religious activity was significantly associated with suicidal ideation (respondents who attend religious activities were 0.258 times less likely to have suicidal ideation than respondents who never attend to religious activities.) This might be due to the religious lessons that act as a preventive means from suicidal behaviors. Also various studies have showed that people who report being more religious also report lower levels of suicide ideation, and people who report being less religious also report greater suicide ideation [25]. However, a study conducted in Ethiopia showed that religious activity was not significantly associated with suicidal ideation (AOR =1.54 CI 0.89–2.67)) [24]

Conclusion

Students in anywhere are potential nation builders. As such, they are the bedrock of the nation and their mental and physical health need to be monitored and take care of. The transition between late adolescence and young adulthood is typically characterized by high levels of stress associated with adjusting to a new social environment and increased academic demands. Moreover, social support networks undergo radical changes during college. While parents and family may remain a part of a student's social support network, the physical separation from parents can be stressful for some students.

Abbreviations

WHO: World Health Organization ,**SPSS:** Statistical Package for Social Science ,**MDI:** Major Depression Inventory ,**HADS:** Hospital Anxiety and Depression Scale ,**MSSI:** Modified Scale for Suicidal Ideation ,**AUDIT:** Alcohol Use Disorder Identification Test ,**MSPSS:** Multidimensional Scale of Perceived Social Support ,**X²:**Chi-Square Test ,**Cr.Hr:** Credit hour,**AOR:** Adjusted Odds Ratio,**COR:** Crud Odds Ratio,**ACHS:** Asmara College of Health Science,**COMSAT:** College of Marine Science and Technology,**HAC:** Hamelmalo Agricultural College ,**OSMD:** Orotta School of Medicine and Dentistry ,**EDU:** College of Education,**SCI:** College of Science ,**ENG:** College of Engineering,**FRI:** Friend ,**FAM:** Family ,**SO:** Significant Other ,**HRD:** human resource development

Declarations

ACKNOWLEDGEMENT

Above all our deepest gratitude goes to the Almighty God who has aided us immensely from the very beginning to the completion of this project. And we would like to extend our heartfelt to our family, for always believing in us and for providing us with endless love and support. We would like to thank our thesis advisors, Dr. Eyob Azaria and students who participated in this study, for their honesty in light of such a difficult topic. Lastly this work would not have been possible if not for the support and guidance of many individuals, and to whom we are sincerely grateful.

AUTHORS' CONTRIBUTION

MB wrote the article. MB, YT, FY, HB participate in study design, data collection and analysis. All authors have read and approved the final manuscript

Ethics approval and consent of participants

Permission to conduct the study was obtained from the ethical review committee of the School of Public Health, Asmara College of health science. A formal letter was written from school of Public Health to all colleges of Eritrea and Eritrea police head quarter. Permission was obtained from respective personal in charge.

Participants of the study were clearly informed about the purpose of the study, and were not participated without their agreement. Data acquired from the participants was kept confidential.

CONSENT OF PUBLICATION

This manuscript has not published elsewhere and is not under consideration by another journal. All authors have approved the final manuscript and agreed for its publication

COMPETING INTERESTS

The authors declare that they have no competing interest.

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Figures

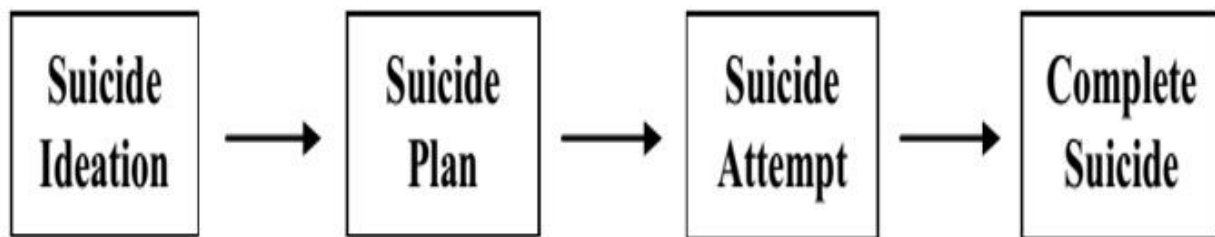


Fig. 1 suicidality process

Figure 1

sucidality process

Figure 2

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Figure 3

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Figure 4. PREVALENCE OF SUICIDAL IDEATION BY GENDER (N=460)

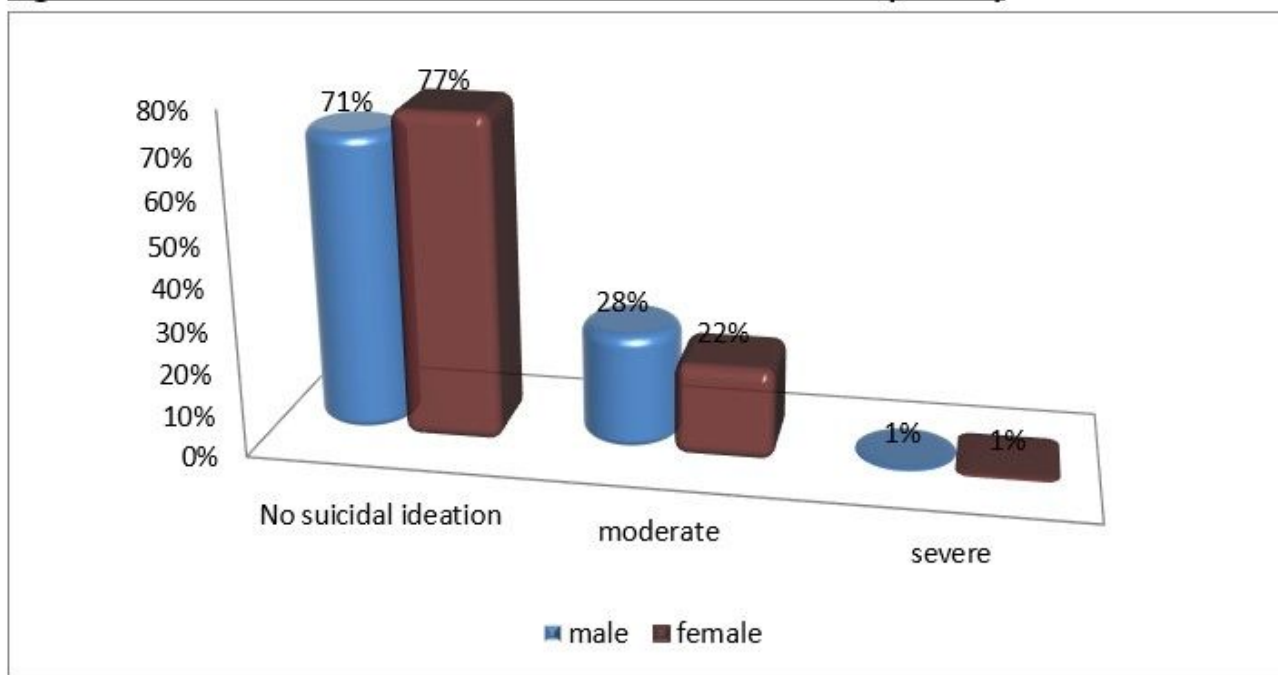


Figure 4

PREVALENCE OF SUICIDAL IDEATION BY GENDER (N=460)

Figure 5

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Figure 6:- Prevalence of Alcohol usage by College (N=460)

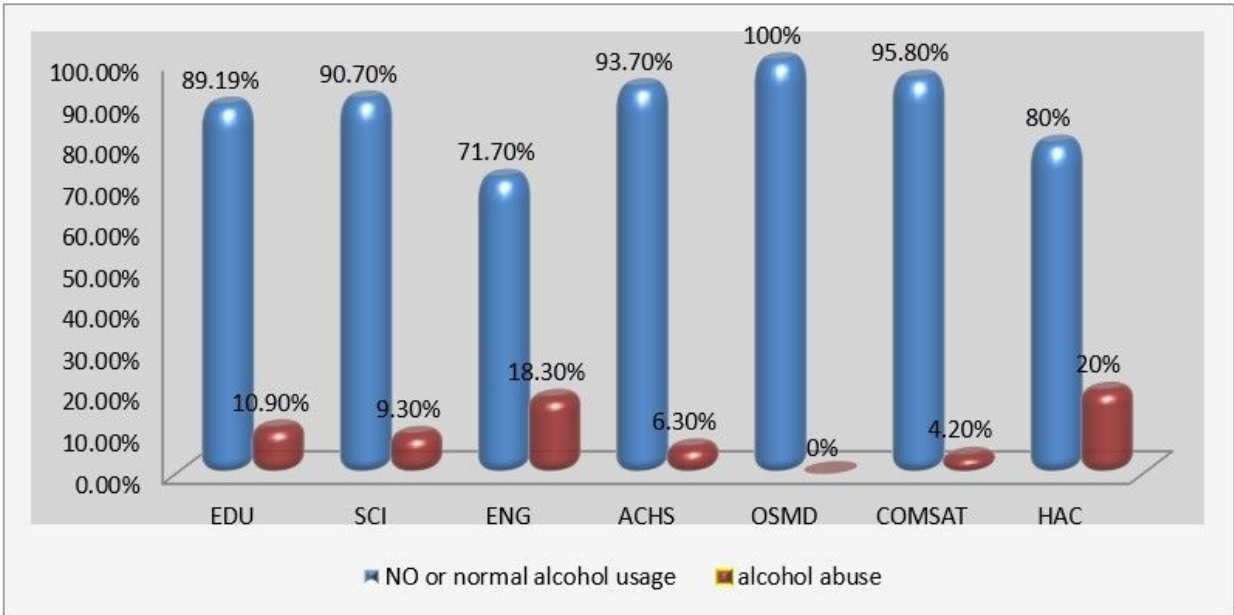


Figure 6

Prevalence of Alcohol usage by College (N=460)

Figure 7:- Prevalence of Depression by College (N=460)

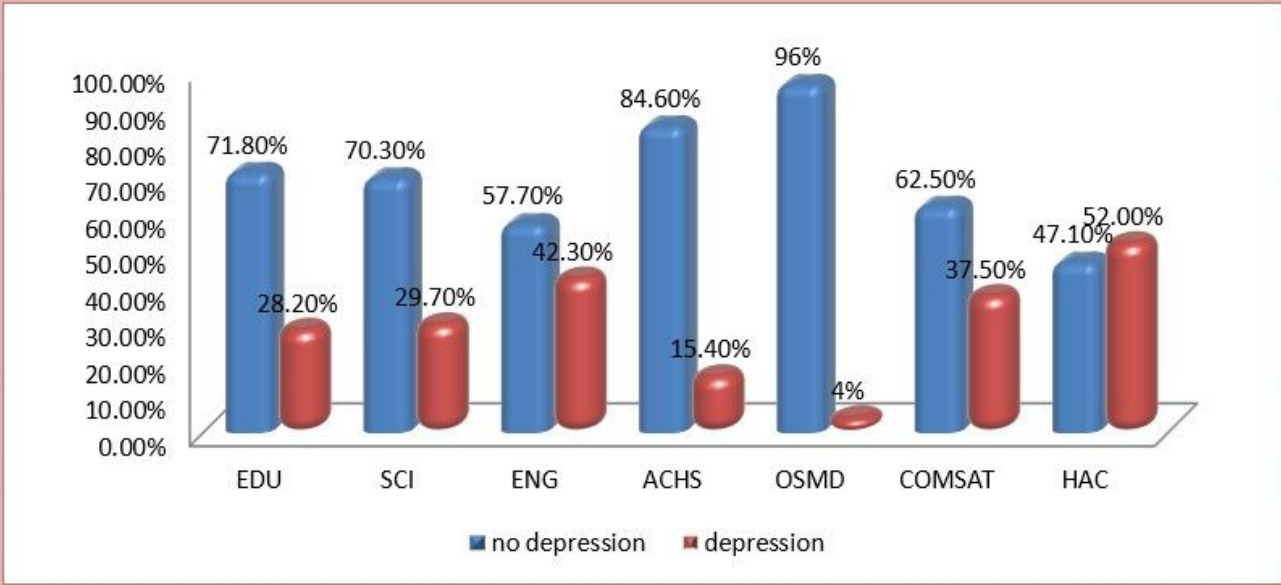


Figure 7

Prevalence of Depression by College (N=460)

Figure 8:- Prevalence of Anxiety by College (N=460)

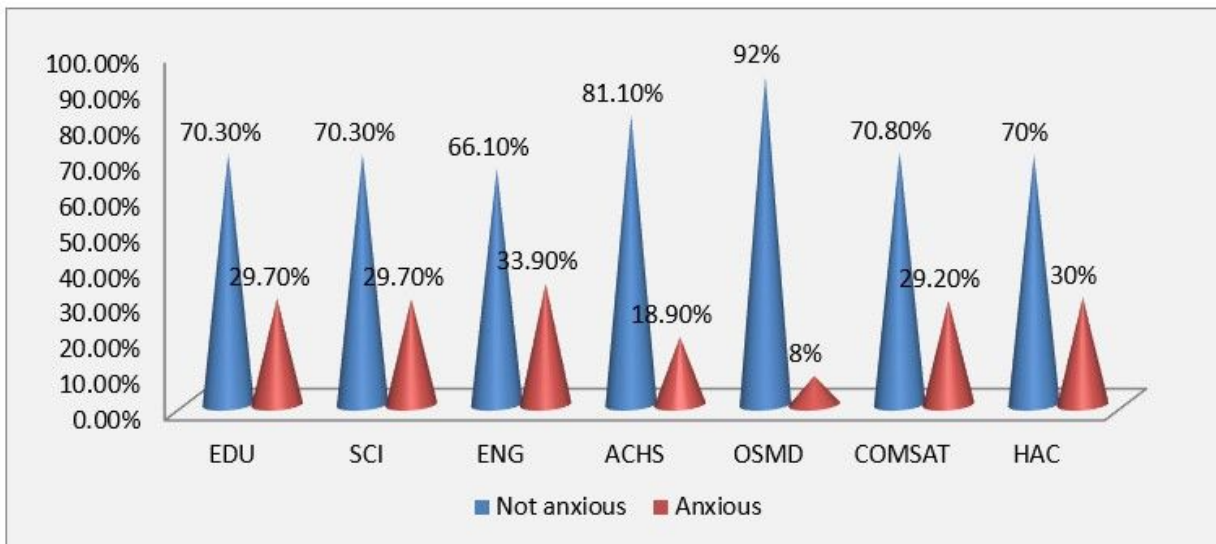


Figure 8

Prevalence of Anxiety by College (N=460)

Figure 9: - prevalence of religious activity among college students (N=460)

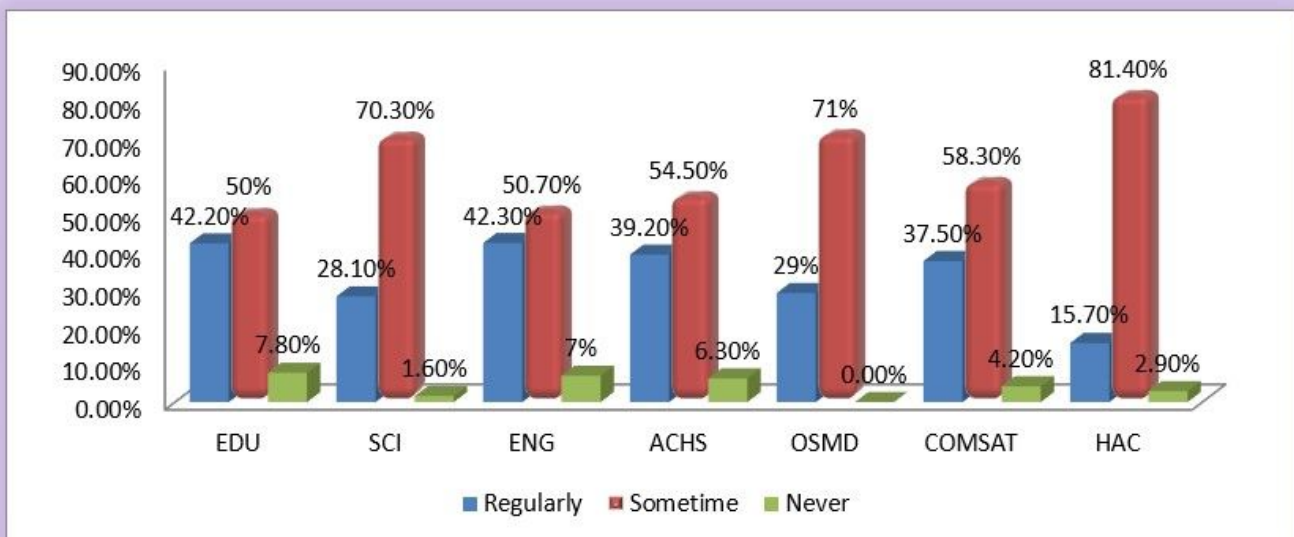


Figure 9

prevalence of religious activity among college students (N=460)

Figure 10:- Prevalence of satisfaction with Cr. Hr. assigned (N=460)

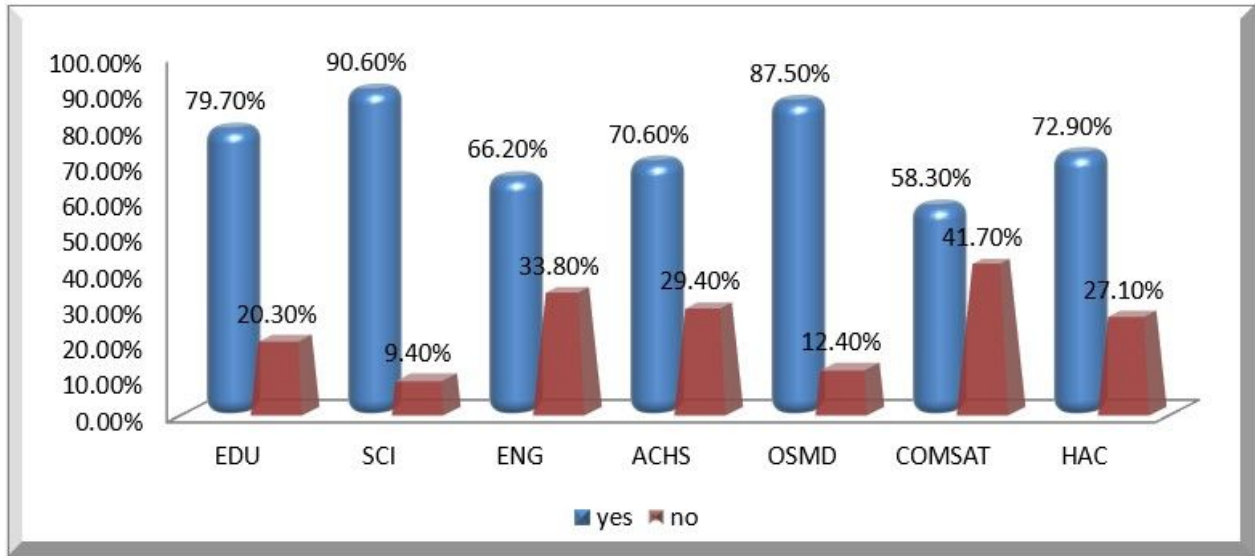


Figure 10

Prevalence of satisfaction with Cr. Hr. assigned (N=460)

Figure 11:- Prevalence of suicidal ideation by age range (N=460)

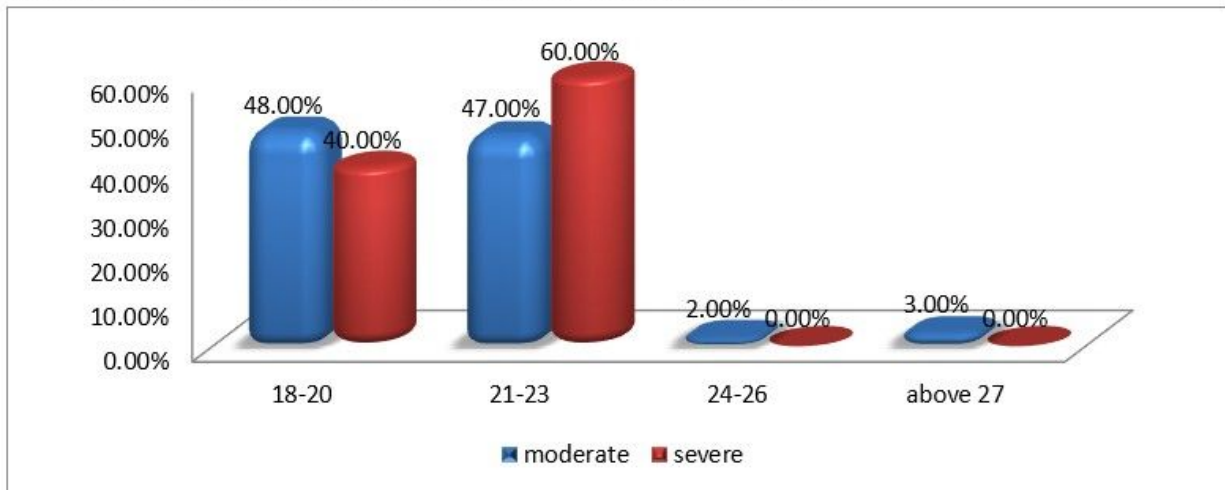


Figure 11

Prevalence of suicidal ideation by age range (N=460)

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