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RESEARCH ARTICLE

Prevalence of Suicidal Ideation, Attempt, and associated factors among Adolescents in Southern Ethiopia: A cross-sectional study

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Abstract

Background: Subscale ideation and attempt are common among adolescent compared to general population. However, little is documented about the problem in Ethiopia. .The study aimed to assess the prevalence of fiducial ideation,attempt and associated factors among adolescent in Dilla town

Methods: A community-based cross-sectional study was employed among 517 adolescent in Dilla town from May 01 to June 30, 2019. Data were collected using pretested interviewer-administered tools. Sucidality model of world mental health survey initiatives version 3.0 of the WHO composite international diagnostic interview were used. Data were entered into epi-data version 3.1 and exported to SPSS version 20 for analysis. Descriptive statistics were computed, and binary logistic regression model was used.In multi-variable binary logistic regression, variables having p-value < 0.05 were declared statistically significant at corresponding 95% CI.

Result: The prevalence of suicidal ideation and attempt among adolescents in Dilla town were 12.4% (95% CI, 9.3-14.9) and 7.2% (95% CI: 5.0-9.5), respectively. Being female, life time use of khat, and mental distress were variables statistically associated with suicidal ideation, whereas poor social support, mental distress, and current use of khat were variables associated with suicidal attempt.

Conclusion: Suicidal ideation and attempt in this study is high. Screening and identification of risky suicidal behaviors among adolescents is essential. More emphasis should be invested among females, substance users and those with emotional disturbance.

Keywords: Adolescents, Ethiopia, Suicidal attempt, Suicidal ideation

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Background

Suicidal behaviors can be explained as a complex process that includes suicidal ideation, planning, attempting suicide and final act of committing suicide[1]. Suicide remains a significant social and public health problem [2]. Now days, World Health Organization (WHO) reported that, more than one million people died by suicide worldwide each year [1, 3]. Suicide is increasingly becoming a notable global public health problem, and it is now the tenth leading cause of death in the general population and the second among adolescents [4]. In the general population annual global suicide rate is 11.4 per 100,000 population or one death every 40 seconds [5]. Globally, suicide accounts for an estimated 6% of all deaths among young people [6]. In developed European countries, the lifetime prevalence of suicidal ideation and attempt among students aged 15–16 years was ranged from 15% to 31.5%, and 4.1% to 23.5%, respectively [7]. In low and middle-income countries, 15.3% of adolescents aged 13–15 years had seriously considered suicide in the past year [8]. It is estimated that there are 10 to 40 nonfatal suicide attempts for every completed suicide [9, 10]. This number increases to 100 to 200 for adolescents [10, 11]. Suicidal ideation often emerges in adolescence and is prevalent among this age group, particularly among females [6]. Overall, although the suicide rate increases with age, suicidal behavior is high and is increasing among young people between the ages of 15 and 19 [12]. As a consequence, suicidal behavior is not only a problem for victims but it has also emotional disturbance for the family members [13, 14]. The attitude and factors associated with suicidal behaviors might be varied depending on the culture of the country in which an individual belongs [15]. Literatures revealed that being female, poor social support, economical problems, separation from partners and previous history of mental illness were some of the risk factors of suicidal behaviors [2, 16]. Despite adolescent suicidal behavior is a common public health problem, less attention is given especially in middle and low-income countries [7, 8, 17-20]. Although suicide continues to remain a serious problem in high-income countries, it is the low and middle-income countries that bear the larger part of the global suicide burden [2]. Besides, developing countries are not well equipped to prevent suicidal behaviors.

In Ethiopia, there are some studies done regarding suicide but the focus was among chronic medical conditions (Tuberculosis, HIV/AIDS patients) [21, 22]. However, there is a dearth of information particularly in community adolescents where many predisposing and precipitating factors of suicidal behaviors are common [23-26]. Since adolescents are the future light of development for one country, identifying the burden and potential risk factor is essential for preventing and giving appropriate intervention among individuals with suicidal behaviors. Thus, our study aimed to determine the prevalence and associated factors of suicide ideation and attempt among adolescent living in Dilla town, Southern Ethiopia.The findings of this study will help the institution to develop appropriate plans and intervention to adolescents with suicidal risk.

Methods

Study design and period

A community based cross-sectional study design was employed.

Study setup

The study was conducted in Dilla town. Dilla town is among eleven zones fond in Southern Ethiopia. The town is located at 360 kilometers away from Addis Ababa (the capital city of Ethiopia) to the South. Dilla town has three sub-cities (Bedecha, Sessa and Harowolabo), and in each sub-cities there were six (6) kebeles (the smallest administrative unit in Ethiopia). Based on the 2007 Census conducted by the central statistical agency (CSA), Dilla town has a total population of 59,150, where 31,068 were men and 28,082 were women [27]. Unlike that of other towns found in Ethiopia, people from different ethnic backgrounds are living in Dilla town almost in unbiased proportion. The town has one governmental referral and teaching hospital (Dilla University Referral Hospital), two

health centers and more than 12 private clinics. Mental health service was provided only in the referral and teaching hospital with both outpatient and inpatient department. As information given from Dilla town administration office there are more than 11, 007 adolescents age (10-19) residing permanently (at least for six months).

Study Participants

All adolescents living in Dilla town were source population; adolescents who live in randomly selected sub cities of Dilla town where study population and participants who were interviewed were study units (samples). In this study, the adolescent was defined according to the World Health organization in which participant with ages range 10-19 years (WHO) [28].

Sample size Determination and Sampling Procedure

The sample size was calculated using a single population proportion in which the proportion of suicidal ideation was14.3% taken from the study done in the Northwest part of Ethiopia (Dangila town) [26] and margin of error 0.03. Using 5% none- response rate, the final sample size was 550 adolescents. Study participants were taken through the multistage sampling technique. In the first stage, two sub-cities were selected randomly from the total three sub-cities. Then, from each selected sub-cities, 3 kebeles (the smallest administrative unit in Ethiopia) were selected by simple random sampling technique. Census was done to identify the actual numbers of adolescents in each kebele before data collection; sampling fame was prepared based on information obtained by survey. After equal allocation of the sample size in each kebele, participants were selected using systematic random sampling. The sampling interval (K) was determined by dividing the total number of households in each kebele by the sample size to be drawn from that kebele. The lottery method was used to select the first household between one and K. If there was more than one eligible adolescent in one house, we selected one using the lottery method.

Data Collection Procedures

The data was collected using a pre-tested interviewer administered questionnaire. The questionnaire was composed of socio-demographic, substance, level of social support, and mental distress- related factors. First, the questionnaire was prepared in English language and translated in to Gedeufa and Amharic (the local languages of the study area) and back translation was done by independent translators to check its consistency. Before the data collection, a pretest was carried out at Hawassa town among 5% of the sample size, and minor modification was made on the expressions of some questions to make them easy for understanding. Nine BSc level psychiatric nurses and Two MSc level mental health professionals were participated in the data collection after attending two days of training regarding the data collection procedures. Enumerators were recruited in each kebele until the expected participants were addressed. The principal investigator and field supervisors werechecked for its completeness.

Data collection tools and Measurements

The questionnaire has five components. Sociodemographic characteristics, substance-related factors, Oslo social support scale, mental distress questionnaire (SQR-20), and suicide-related questionnaires.

Social support was assessed using three item-Oslo-3 social support scales with ranges of scores poor=(3-8), moderate=(9-11), and strong=(12-14) [29]. Ever and current substance use were assessed according to the world health organization recommendation by contextualizing our study [30]. Self-reporting questionnaires (SRQ-20) were used to assess the presence of psychological stress (anxiety, depression, psychosomatic symptoms). The SRQ-20 has been tested in numerous settings and a cut-off point 7 was widely used, with the specificity of 83% and sensitivity of 89.5% [31].

The outcome variables (Suicidal ideation and attempt) were assessed by using the suicidality module of World Mental Health (WMH) survey initiative version 3.0 of the World Health Organization (WHO) composite international diagnostic interview (CIDI) which is validated in Ethiopia and found with good accuracy [32].

Data Analysis Procedure

Coded and checked data were entered into the computer using EPI Data version 3.1 and imported to statistical package for social science (SPSS) window software version 20. Descriptive statistics such as (frequency, percentage and mean) were computed and presented using tables and charts to show picture of the data. Bivariate binary logistic analysis was performed to determine each of explanatory variables and variables with p- value less than 0.2 during bivariate analysis were entered to multivariate analysis.

Multivariate binary logistic regression analysis was conducted to determine the presence of a statistically significant association between explanatory variables and outcome variables. Hosmerlemshow goodness model fitness was checked and its result was not significant statistically. Variables with P values less than 0.05 were considered statistically significant and strength of the association was presented by adjusted odds ratio with 95% CI.

Ethical consideration

The study was carried out after securing ethics approval from IRB of college of health sciences & medicine. Support letter was obtained from Gedeo zone health department. Data were collected after obtaining written consent from participants and parents were required to provide consent for participants under the age of 18 years. The information obtained was kept confidential during all stages of the study and used only for the study.

Results

Socio-demographic distribution of the respondents

About 517 study subjects were included in the study yielding 94% of the response rate. Among the respondents, the majority were in the age range of 16-19 years 382 (73.9%), about 276 (53.4%) were males. Of the total participants, 307 (59.4%) were protestant religious followers, and 299 (57.8%) were Gedeo in their ethnicity. The majority of the participants were single 434 (83.9%). The educational status of participants showed that; 289 (55.9%) of them attended primary level of education. Regarding occupation, 141 (27.3%) participants reported that they are daily laborer. The majority of respondent were living with their family member 441 (85.3%) (Table 1).

Psychosocial and Substance-related characteristics of the respondents

Regarding the psychosocial characteristics of the respondents, about 71 (13.7%) reported mental distress. Majority of respondents reported poor social support 246 (47.6%). Among participants, 86 (16.6%) had history of problematic alcohol use, 62 (12%) had history of current khat use and 29 (5.6%) of respondents had experience of current cigarette use within three months period (Table 2).

Table 1 Socio-demographic factors of adolescents living in Dilla town Gedeo zone Ethiopia, 2019 (n=517)

Variable	Category	Frequency (N=517)	Percent (%)
Age	10-15	135	26.1
	16-19	382	73.9
Sex	Male	276	53.4
	Female	241	46.6
Religion	Orthodox	146	28.2
	Muslim	58	11.2
	Protestant	307	59.4
	Others*	6	1.2
Marital status	Single	434	83.9
	Other**	83	16.1
Ethnicity	Gedeo	299	57.8
	Gurage	78	15.1
	Amhara	65	12.8
	Oromia	50	9.7
	Other***	25	4.8
Education status	Unable to read and write	20	3.9
	Abel to read and write	110	21.3
	1-8 grade	289	55.9
	8-12 grade	98	18.95
Occupational status	Student	134	25.9
	Daily labor	141	27.3
	Merchant	113	21.9
	Farmer	32	6.2
	Unemployed	73	14.1
	Other ***	24	4.6
Living status	With family	441	85.3
	Alone	76	14.7

Others*=wakefeta & no religion; **= married, divorced & widowed; ***=gurage, wolita, ****= hausewife and gov'employee.

Table 2 Description of psychosocial and Substance-related factors among adolescents in Dilla town, Gedeo zone, Ethiopia, 2019 (n=517)

Variables	Category	Frequency	Percent (%)
Stress	No stress	446	86.3
	Have stress	71	13.7
Social support	Poor social support	246	47.6
	Moderate social support	205	39.65
	Strong social support	66	12.76
Alcohol	No problem	431	83.4
	Problem	86	16.6
Life time use of Khat	Yes	150	29.0
	No	367	71.0
Life time use of Cigarette	Yes	43	9.9
	No	466	90.1
Current use of Khat	Yes	62	12
	No	455	88
Current use of Cigarette	Yes	29	5.6
	No	485	94.4

Magnitude of Suicidal Ideation and Attempt among adolescents

Life time Suicidal ideation was reported by 64 (12.4%) of adolescents with (95% CI, 9.3-14.9) Majority of participants with suicidal ideation were females 45 (70.3%). The life time prevalence of suicidal attempts among participants was 37 (7.2%) with (95% CI, 5.0-9.5). Among those who attempted suicide 29 (5.6%) had a plan before their attempt. The most commonly used method of an attempt was poisoning 18 (48.6%) followed by hanging 8 (21.6%). More than half of suicidal attempters 24 (64.8%) reported that; their suicidal attempt was related to conflict with their family (Table 3).

Table 3 Frequencies of suicidal ideation and attempt among adolescents in Dilla town, Gedeo zone, 2019

Variables	Category	Frequency	Percent (%)
Ever suicidal ideation	Yes	64	12.4
	No	453	87.6
Ever plan of suicide	Yes	29	5.6
	No	487	94.4
Ever suicide attempt	Yes	37	7.2
	No	480	92.8
Reason for suicidal attempt	Family conflict	24	64.8
	Economic problem	2	5.4
	Puberty	4	10.8
	Medical illness	1	2.7
	Death of family	6	16.2
Methods of attempt	Hanging	8	21.6
	Jumping from high place	2	5.4
	Poisoning	18	48.6
	Sharp tools	5	13.5
	Other	4	10.8

Factors associated with Suicidal Ideation among Adolescence

In bivariate logistic regression analysis, being female, living alone, being stressed, having poor social support, recent and life time khat chewing show p-value <0.2. These variables were the candidates for multivariate binary logistic regression. Being female, having stress, and life time khat use retains statistical significant association with suicidal ideation at p-value <0.05

The odds of having suicidal ideation among female participants was 3.56 times higher as compared with counter groups (AOR=3.56, 95% CI, 1.89, 6.69).

Participants who were having stress were 4.36 times more likely to have suicidal ideation as compared with respondents who have no stress (AOR=4.36, 95% CI, 2.30, 8.24). The odds of having suicidal ideation among respondents with life time use of khat was 2.81 times higher as compared to non-users (AOR=2.81, 95% CI, 1.49, 5.29) (Table 4).

Table 4 Logistic regression analysis of associated factors with suicidal ideation among adolescents in Dilla town, Gedeo zone Ethiopia, 2019 (N=517)

Explanatory variables	Suicidal Ideation		COR, (95% CI)	AOR, (95% CI)
	Yes	No		
Sex				
Male	19	257	1	1
Female	45	169	3.11 (1.76,5.48)	3.56 (1.89, 6.69)**
Living status				
With family	53	388	1	1
Alone	11	65	1.24 (0.62, 2.5)	1.42 (0.65, 3.11)
Stress				
Yes	23	48	4.733 (2.62,8.55)	4.36 (2.30, 8.24)**
No	41	405	1	1
Life time use of Khat				
Yes	34	116	3.3 (1.93, 5.62)	2.81 (1.49, 5.29)**
No	30	337	1	1
Current use of khat				
Yes	14	50	2.36 (1.22, 4.59)	1.7 (0.74, 3.91)
No	48	405	1	1
Social support				
Poor	30	216	1.01 (0.44, 2.3)	0.96 (0.39, 2.40)
Moderate	26	178	1.06 (0.45, 2.47)	1.08 (0.43, 2.70)
Strong	8	59	1	1

*=P- value <0.01, **=P-value <0.05 and 1= references groups

Factors associated with Suicidal Attempt among Adolescence

In binary logistic regression analysis, being female, living alone, having mental stress, having poor social support, recent and life time use of khat shows p-value <0.2. These variables were the candidates for multivariate logistic regression model but poor social support, current use of khat,and having mental stress were retained statistical significant association with suicidal attempt at p-value <0.05.

The odds of having suicidal attempt among respondents with mental distress was 4.26 times higher as compared to counter parts (AOR=4.26, 95% CI, 1.89,9.60). The respondents with current time use of khat were 7.7 more likely to have suicidal attempt than non-users (AOR=7.7, 95% CI, 3.12, 19.0).

Additional variable associated with suicidal attempt was having poor social support. The odds of having suicidal attempt among adolescents with poor social support were 4.75 times higher as compared to the participants with strong social support (AOR, 4.75, 95% CI, 1.02, 21.59) (Table 5).

Table 5 Logistic regression analysis of associated factors with suicidal attempt among adolescences in Dilla town, Gedeo zone, Ethiopia, 2019 (n=517)

Explanatory variables	Suicidal Attempt		COR, (95% CI)	AOR, (95% CI)
	Yes	No		
Sex				
Male	21	255	1.6 (0.60,2.27)	1.04 (0.48, 2.24)
Female	16	225	1	1
Living status				
With family	30	411	1	1
Alone	7	69	1.39 (0.58, 3.29)	1.46 (0.53, 4.06)
Stress				
Yes	15	56	5.16 (2.53, 10.53)	4.26 (1.89,9.60)**
No	22	424	1	1
Current time use of khat				
Yes	14	8	5.48 (2.65, 11.35)	7.7 (3.12,19.0)**
No	23	432	1	1
Social support				
Poor	32	214	4.79 (1.12, 20.51)	4.75 (1.02, 21.59)*
Moderate	3	202	0.32 (0.04, 2.30)	0.23 (0.03, 1.75)
Strong	2	64	1	1

*=P-value <0.01, **=P-value <0.05 and 1=references groups

Discussion

In this study, the prevalence of suicidal ideation was 12.4% with (95% CI, 9.3-14.9). The magnitude of our study's finding was consistent with a systematic study conducted in 32 low and middle-income countries that the 12-month prevalence of suicidal ideation was 12% among males [33]. The pooled prevalence of life time suicidal ideation in USA was also 22.3%, which is higher than prevalence of suicidal ideation in our study [34]. However, the prevalence of suicidal ideation in current study was lower than cross sectional study conducted in Gondar, Ethiopia among university students 19.9% [24], study conducted in Dangilla town among 573 participants with the prevalence of suicidal ideation 22.5% [26] and study conduct in Ghana 18.2% [35].

The possible reasons for the difference might be due to difference in studies designs used and sample size as well as variation of the study population. In addition, it might be also due to variation of study setting, in which a previous study from Gondar was conducted among students who might face academic and environmental difficulties while they were assigned to different activities in the university. Differences in time of study might be also another possible reason for the discrepancy.

The magnitude of suicidal attempts in the current study was 7.2%, with (95% CI, 5.0-9.5) which is almost similar to the study conducted in Poland, about 4.37% of the participated adolescents reported suicidal attempts [36]. However, the finding of this study was higher than studies conducted in USA 1.2% [34]. On the other hand, the prevalence of suicide attempt in our study was lower than cross-sectional study done in Ghana 22.2% [35]. The discrepancy might be due to variation in study design, which was prospective study design in USA [34]. The difference in sociocultural, settings and sample size might be other possible reasons for the inconsistency of findings.

Regarding factors associated with suicidal

ideation, being female, participants who have mental distress and life time khat users were highly influenced by suicidal ideation. This was supported by cross-sectional study conducted in Gondar among university students that mental distress and khat chewing were significantly associated with suicidal ideation [24]. The possible reason might be due to the impact of chewing on brain and different organ systems. Khat chewing has also negative effect on economic aspects of chewers, which is distressing to survive life, particularly in developing countries. literatures also showed that khat has a direct effect to mental illness like suicidal ideation, aggression and anxiety [37]. A study conducted in Nepal among adolescents also concludes that anxiety (stress), loneliness, in security were significantly associated with suicidal ideation [38]. On the other hand, being female was more prone for suicidal ideation. The possible explanation may be the fact that depression (the predisposing factor of suicide) is more prevalent among females [39].

Concerning suicidal attempt, being mentally distressed was four times more likely to have suicidal attempt. this was in agreement with a cross-sectional study conducted in Jamaica showed that stress was positively associated with suicidal attempt [40]. In addition, suicidal attempt is not always a planned action which means that emotional disturbances might be precipitating it.

The other strongly associated factor with suicidal attempt was current khat chewing. According, adolescents who chew khat currently were eight times more likely to have suicidal attempt than non-chewers. This is consistent with cross sectional survey in Poland, suicidal attempt correlates intake of psycho active substances like khat and cigarette [36]. Participants with poor social support were also more prone for suicidal attempt as compared with their counter parts and this finding was supported by study conducted among students in Gondar, Ethiopia [24]. Social support is important for psychological adjustment and individuals who have poor social support may think difficulty to adjust to psychological problem by themselves and feeling alone may lead to suicidal attempts [41].

Limitation of the study

There were potential limitation for our study. Firstly, design cannot allow establishing a temporal relationship between suicidal ideation, attempt, and significant associated factors. Secondly, only limited variables were candidate to multivariable analysis, while doing bivariate binary logistic regression. Thirdly, since data collection was interview method, it might face recalling problem of some symptoms.

Conclusion

In this study, the magnitude of suicidal ideation and attempt were high as compared to general population. Both suicidal ideation and attempt had statistically significant association with mental distress. Being female participant and life time khat chewing is significantly associated with suicidal ideation but having poor social support and current khat chewing were significantly associated with suicidal attempt. Understanding the determinants of suicide in the leaders of tomorrow adolescents is a critical step towards development of the health system and health. It is better to focus on improving social relationships throughout adolescence by sex and living status. Gedeo zonal health office should work on the risk factors of suicide among adolescents, like khat chewing.

Assertions

Consent for Publication: Not applicable

Competing Interest

The authors declare that they have no conflicts of interest.

Availability of data and materials

All the data included in the manuscript can be accessed from the corresponding author through the email address alexmolla09@gmail.com.

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Authors' Contributions

SD & DA wrote the proposal, participated in data analysis; write up of the paper. AM, YB & BM Participated in data analysis and revised subsequent drafts of the paper and was involved in manuscript writing. All authors read and approved the final manuscript.

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