



## Prevalence and socio demographic correlates of suicide among patients visiting adult emergency department of Adama hospital medical college, Adama, Oromia Regional State, Ethiopia

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### Abstract

**Background:** Suicide is a global problem. It is an important cause of death across the human lifespan. In addition to the impact on individuals who attempt and die from suicide, the powerful ripple effect that suicide has on families, friends, communities and countries is far-reaching. However it is a neglected public health issue in middle and low-income countries especially practically in Ethiopia.

**Objective:** The aim of the study was to assess the prevalence and socio-demographic correlates of suicide among patients visiting adult emergency outpatient department at Adama Hospital medical College

**Methods:** Hospital based cross sectional study method was conducted from February 1-30/2018 involving 275 patients visiting EOPD by face to face interview using structured questionnaire. Data were summarized using different summery formats and binary logistic regression was computed to determine factors that are related to suicidal ideation and attempt.

**Result:** A total of 275 subjects were participated with a response rate of 100%. The prevalence of suicidal ideation were 18.9% [males=53.7%, females=46.3%] and the prevalence of suicidal attempt were 12.4% [males=47.1%, females=52.9%]. Being, harmfully using alcohol, and having family history of suicide are seemed to be associated with suicidal Ideation. Being drinking alcohol, having mental illness and having family history of suicide were positively associated with suicidal attempt; but having mental illness was not associated with suicidal ideation. Seventy five percent of males used hanging as a method of attempting suicide. But poisoning was preferred by females (63.6%). Thirty-nine patients (13.7%) were identified to be at increased risk of committing suicide; of whom 18 (46.1 %) had imminent risk and 21(53.9%) were found to be at a potential risk.

**Conclusion:** The prevalence of suicide ideation and attempt were high and were associated with preventable risk factors which show a significant health issue among emergency visiting patients that requires a great emphasis.

**Keywords:** prevalence, socio-demographic, suicide

### Introduction

The term suicide comes from the Latin term “sui caedere” to kill one self” means the act of a person intentionally causing his or her own death <sup>[1]</sup>. Stedman medical dictionary define suicide as an act of deliberately taking one’s own life <sup>[2]</sup>. It is a deliberate and fatal self-harm with the presence of some intent to die as a result of the behavior <sup>[3]</sup>. It is a major worldwide public health issue and, as such, a great deal of effort has been directed towards achieving a better understanding of suicide <sup>[4]</sup>. Suicidal behavior can occur at any time in the lifespan but is rarely seen in children under the age of 5 and a young child is hardly capable of designing and carrying out a realistic suicide plan <sup>[1,4]</sup>. Cognitive immaturity seems to play a protective role <sup>[3]</sup>. In pre pubertal children, the behavior will often consist of a behavior that a parent has forbidden because of the risk of accident <sup>[3]</sup>. Approximately 25%-30% of persons who attempt suicide will go on to make more attempts <sup>[4]</sup>. There is significant variability in terms of frequency, method, and lethality of attempts. However, this is not different from what is observed in other illnesses, such as major depressive disorder, in which frequency of episode, subtype of episode, and impairment for a given episode can vary significantly <sup>[4]</sup>.

There are a variety of factors that are empirically linked to suicide; such as gender, age, previous suicidal attempts, hopelessness, psychiatric diagnosis like; bipolar disorder, schizophrenia, personality disorder, anxiety, posttraumatic stress disorder and delirium <sup>[5]</sup> and childhood physical abuse <sup>[5, 6]</sup>.

Across psychiatric disorders, hopelessness is strongly associated with suicide. As an example, in one multivariate model, hopelessness was 1.3 times more important than depression in explaining suicidal ideation <sup>[7]</sup>. It can persist even when other symptoms of depression have remitted and may mediate the relationship between low self-esteem, loneliness, interpersonal losses, and suicide <sup>[7]</sup>.

Impulsivity, particularly among adolescents and young adults, is also associated with acting on suicidal thoughts, and the combination of hopelessness, impulsivity, and disinhibition from substance abuse may be particularly lethal <sup>[8]</sup>.

Another strongest single factor predictive of suicide is prior history of attempted suicide. Patients with a prior history of suicide attempts are 5 to 6 times more likely to make another attempt; furthermore, up to 50 percent of successful victims have made a prior attempt <sup>[9]</sup>. One of every 100 suicide attempt

survivors will die by suicide within one year of their index attempt, a risk approximately 100 times that of the general population [10].

Risk for completed suicide, following a history of suicide attempt, is greatest in patients with schizophrenia or uni polar and bipolar disorder [11].

The risk of suicide increases with increasing age, however young adults attempt suicide more often than older adults [12]. Females attempt suicide four times more frequently than males, but males are successful three times more often [12].

Suicide risk varies with marital status and the highest risk occurs among those never married, followed in descending order of risk by widowed, separated, or divorced; married without children; and married with children [13]. Whatever the family structure, living alone increases the risk of suicide [13].

Unemployed and unskilled patients are at higher risk for suicide than those who are employed and skilled; a recent sense of failure may lead to higher risk [14].

Suicide risk increases with physical illness such as chronic pain, recent surgery, and chronic or terminal disease; like, HIV, Asthma, DM, and high BMI [15].

Childhood abuse and other adverse childhood experiences appear to increase the risk of suicide in adults. As an example, a retrospective cohort study found a graded relationship between the number of adverse childhood experiences (defined as emotional abuse, physical abuse, sexual abuse, battered mother, substance abuse in home, mentally ill household member, parents separated/divorced, and incarcerated family member) and other suicide risk [16].

The risk of suicide increases in patients with a family history of suicide. Having a first-degree relative who committed suicide increases the risk six-fold. And Twin studies suggest that this increased risk has both environmental and genetic components [17].

The risk of suicide increases in patients with accessibility to weapons, especially firearms, in patients who live alone, have lost a loved one, or have experienced a failed relationship within one year; and possibly in patients with a history of violent behavior in the previous year [18]. The anniversary of a significant relationship loss is also a time of increased risk [19]. For example, among those widowed, the risk of suicide is highest in the first week after bereavement, decreasing rapidly in the first months thereafter, but remaining elevated throughout the first year following the loss [19].

Sociopolitical, cultural, and economic forces can lead to increased suicide rates in populations [20]. Violence and political coercion are associated with increased rates of suicide, as are economic downturns and those living in rural areas have higher rates of suicide than those living in urban areas [20]. People who score lower on academic performance also appear to have a higher risk of suicide [20].

These relationships of risks are appeared to be at least partially precipitated by the presence of alcoholism, depression, and illicit drug use, a narrow view of the options available to deal with recurrent family discord, rejection, or failure, loss of face with peers, a broken romance, school difficulties, unemployment, bereavement, separation, Clusters of suicides among adolescents who know one another and go to the same school, conflicts and arguments with family members and boyfriends or girlfriends can

further predispose an already vulnerable adolescent to suicidal behavior[3]. In other cases, an adolescent attempts suicide in anticipation of punishment after being caught by the police or other authority figures for a forbidden behavior [1]. Some studies have found an increase in adolescent suicide after television programs in which the main theme was the suicide of a teenager. Suicidal behavior can precipitate other such attempts within a peer group through and contributes to a decision to commit suicides which are also strongly associated with completion [5].

Certain warning signs for suicide like; isolation, drastic changes in mood, hopelessness, anger and acting out, and increased use of alcohol and/or drugs are behavioral and observable [21].

Social support and family connectedness is protective against suicide, while family discord increases the risk of suicide [22]. Religiosity and participating in religious activities is associated with a lower risk of suicide [23].

Suicidal ideation, gestures, and attempts are frequently, but not always, associated with depressive disorders [3]. Reports indicate that as many as half of suicidal individuals express suicidal intentions to a friend or a relative within 24 hours before enacting suicidal behavior [3]. Suicidal ideation occurs in all age groups and with greatest frequency among adolescents.

## **2: Objective**

### **2.1. General objective**

The general objective of the study was to determine the prevalence and socio-demographic correlates of suicide at adult emergency department of Adama Hospital Medical College in, 2018.

### **2.2. Specific objectives**

- To determine the prevalence of suicide in Adama Hospital Medical College in 2018
- To describe socio-demographic characteristic of patients with suicidal behaviors in Adama Hospital Medical College in 2018
- To analyze the association of factors with suicidal behaviors in Adama Hospital Medical College in 2018

## **3. Methods and materials**

### **3.1. The study period and Study Design**

The study was conducted on patients visiting adult emergency outpatient department at Adama Hospital Medical College, from Feb1, 2018to Feb30, 2018 using a Hospital based cross sectional study design to determine the prevalence and socio-demographic correlates of suicide.

### **3.2. Population**

The population for this study is residents of Adama city.

#### **3.2.1. Source population**

All patients visiting AHMC were used as a source population.

#### **3.2.2. Study population**

All patients who were visiting adult emergency outpatient department were taken as the study population.

Each patient who came to adult emergency outpatient department & present during the study period and fulfilled the inclusion criteria was studied.

### 3.3. Inclusion and exclusion criteria

**3.3.1. Inclusion criteria** -All patients who come to adult EOPD and only residents of Adama city were included.

**3.3.2. Exclusion criteria**

- Those who were Unable to respond because of illness.
- Those who were not willing to respond to questions.
- Those who were non-communicative.
- Those who report themselves as not suicider despite their attendants report were excluded from the study.

### 3.4. Sample size determination and sampling technique

**3.4.1. Sample size determination**

The sample size was determined considering what was desirable and what was feasible, in accordance with the available resource. So, using the formula to estimate a single population proportion the sample size was determined to be 275.

**3.4.2. Sampling technique**

The judgmental/purposive sampling technique was used, as the study subjects were difficult to locate and randomization was not expected to provide representative samples.

### 3.5. Measurement and Study Variables

The dependent variable of the study is prevalence of suicide among clients visiting emergency outpatient department. The study has also independent variables like sex, age, religion, educational status, marital status, family size and monthly income of the respondent.

**3.7. Data collection tool**

Data was collected using interviewer-mediated standardized questionnaire for suicide risk screening which was adopted from international institution of mental health containing socio-demographic variables, suicide ideation and attempt, the method of suicide attempt and suicidal risk. These questionnaires were checked for its validity internationally in different countries of the world and currently in use.

**3.6. Data quality control**

A questionnaire was prepared in English and then translated into local language to make the data collection process easier and rechecked on patients for its practicability, reliability and suitability. Short time training was given to data collectors on data collection tools and sampling technique. Close supervision was held during data collection and each data were checked for completeness by the principal investigator.

### 3.8. Data analysis & Interpretation

The data were first ordered, checked for completeness, and then entered into computer software Statistical package for social science window version 20 for analysis. Continuous variables and

scores on the scales were divided into categories for ease of analysis and to minimize effects of extreme values. The estimation of the prevalence of suicide ideation and attempt using descriptive statistics like; cross-tabulations frequencies, and mean were performed. Bivariate analysis was performed to determine each of the factors and how they were associated with suicidal ideation and attempt. Only factors that have been found to be significantly associated with suicide ideation and attempt during bivariate analysis were entered into the multivariate logistic regression. A p-value of 0.05 was considered as statistically significant.

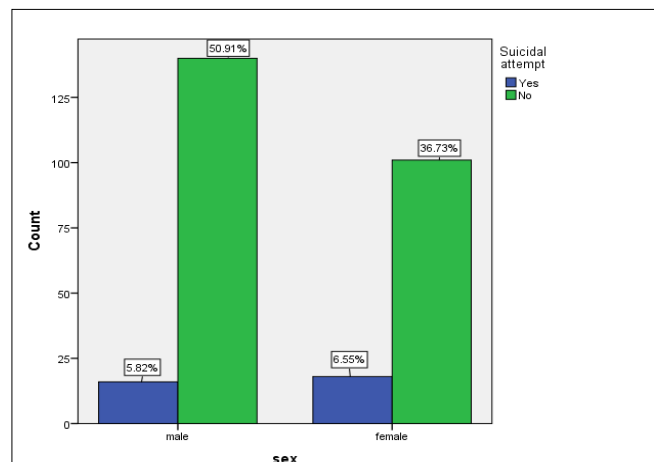
### 3.9. Ethical statement

Ethical clearance was obtained from the ethical board of Adama Hospital Medical College and permission was obtained from the concerned. Formal letter was given to adult emergency outpatient department head. The objective & purpose of the study was explained to them. Similarly the study subjects were clearly informed about the purpose of the study and after informed verbal consent was taken, they were taken to the private room for confidentiality and interviewed. Finally they were reassured about information confidentiality and departed.

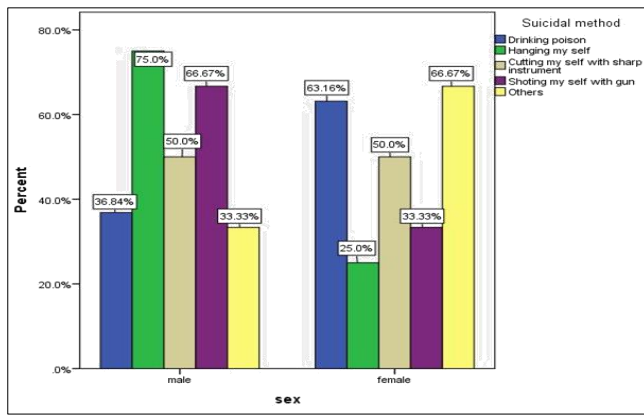
## 4: Result

### 4.1. Prevalence of suicide ideation, suicide attempt and future risk.

The prevalence of suicide ideation within the last two weeks was found to be 52(18.9%) [Males=51.9%, females=48.1%]. Whereas the magnitude of suicide attempt was 34(12.4%) [Males=47.1%, females=52.9%]. Of study participant 39(13.7%) of them were at a risk of committing suicide within the last two weeks in whom imminent and potential risks were identified 18(46.1%) and 21(53.9%) respectively.



**Fig 2:** Shows Percentage distribution of suicidal attempt by sex, among patients visiting emergency outpatient department at Adama Hospital Medical College, 2018.



**Fig 2:** Percentage distribution of methods used to attempt suicide by sex among patients visiting emergency outpatient department at Adama Hospital Medical College, Adama, Ethiopia, 2018.

## 5: Discussion

This study found the prevalence of suicide ideation and attempt among 275 patients visiting adult emergency outpatient department in the year 2018 G.C. The prevalence of suicide ideation was 18.9% (52). Globally the life time prevalence rates were approximately 9.2% for suicidal ideation [33]. In United States prevalence of suicidal ideation was 15.6% [9]. The study conducted in Benin indicated that 23.2% of patients had thought about suicide per year [23]. This finding is big when seen with respect to the time frame in which it was done. In the current study there was also a difference in the magnitude among male and female [male 53.7%, female 46.3%]. This gender disparity is even greater in high income countries where male account for roughly three times the number of suicide than women [13]. For example in South Africa male suicide rated 79.2% [30, 31]. That might be due to that males; tend to ruminate in their depressed mood and amplify it. This might also related to their impulsive aggression and their greater vulnerability to stress in face of difficulty, difficulty in immediate problem solving skills. 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%. and in Fiche it was 20.5% [22, 36]. 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 showed that 307(64.8%) of patients having suicidal ideation [24]. 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 emergency outpatient based studies where proper evaluation is difficult. In general, as indicated above Global facility-Based Health Survey conducted in different African countries showed variability in the prevalence of suicidal ideation. Both South Africa and Benin had the highest prevalence of suicidal ideation (79.2%) and (23.2%); But our finding was lower than the prevalence of both.

Drinking alcohol and having family history were positively associated with suicide ideation [AOR=1.942., 95% CI (1.879, 4.310)], [AOR=3.584, 95% CI (1.452, 8.847)] respectively. The Benin study also shows the same relationship. In South Africa it was estimated that about one-third of suicide is attributed to

alcohol use. In study conducted in rural district in Ethiopia as well as Fiche town harmful use of alcohol were significantly associated with suicidal ideation [35, 36]. The possible justification is difficult, but it is possible that there are cultural factors that could explain these findings. On the other hand family size and having mental illness were not associated with suicidal ideation. The prevalence of suicide attempt calculated in this study was 12.4% (34) and in terms of sex [males=47.1%, females=52.9.0%]. And of the study participants who had seriously thought about suicide, 23(69.6%) of them had attempted suicide in their life time experience. Globally the prevalence of suicidal attempt is approximately 2.7%. And 5.0% in United States [33, 9]. The Benin study shows prevalence of suicide attempt was 28.3% per year with higher magnitude of attempt among female gender. The current study also indicated females' predominance in terms of attempt. This might be explained by the fact that they may use suicide as a means of escape from suffering than men do. The survey that was done to estimate life-time prevalence in Ethiopia among adults in Addis Ababa reported 14.3% of the adolescents having attempted suicide and in Fiche it was 12.5%. These were nearly similar with our current study finding. In rural district in Ethiopia it was 4.4% [35]. 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%. This could be perhaps explained by the difference in population and study setting.

Furthermore, we found that patients who drink alcohol were more likely to attempt suicide [AOR=2.778, 95% CI (1.932, 8.280)]. This is the same with other study findings in Ethiopia.

Patients who had history of suicide in their family tried to end their life three times more likely than patients having no family history of suicide [AOR=3.649, 95% CI (1.110, 12.003)]. Other studies of the same kind also suggest that patients who have family history of suicide attempt suicide 5 to 6 times more likely than who were not [9]. Having a first degree relative who committed suicide increase the risk six-fold and twin studies suggest that this increased risk has both genetic environmental component [17].

Being having mental illness also remained positively associated with suicide attempt [AOR=7.984, 95% CI (2.321, 27.468)]. As an example, across psychiatric disorders hopelessness is strongly associated with suicidal attempt; in one multivariate model, hopelessness was 1.3 times more important than depression for suicide [7]. It is often stated that over 90% of individuals who die by suicide have mental disorders [16]. In addition some mental disorders confer higher risk for suicide than others; for instance; In developed countries, the disorders that most strongly predict a subsequent suicide attempt are; bipolar disorder, posttraumatic stress disorder, conduct disorder, and drug abuse/dependence; in developing countries, the most predictive disorders are; posttraumatic stress disorders, conduct disorder and drug abuse/dependence [18]. In general term, study conducted in different countries on the association of suicide with mental illness showed strong and linear association.

Suicide rates also differ by age. This survey declared that most frequent age of attempt was between 18 and 24 years (17.9%). According to the study on autopsy cases in Kenya 40% of those who committed suicide were in the age group of 21-30 years; in south Africa suicide appears to be more common among young

people 20-34 years 46.5%; In Egypt the age predominance was 20-30 years [28, 30, 33]. In Addis Ababa most of the attempts (66%) occurred when subjects were under 25 years of age [41]. These findings showed that adolescents and young adults were suffering from such event and the assumption goes with the current findings.

We also found that the most preferable method of attempting suicide was hanging in male 75% and poisoning in female 63.6%. Hanging was three times more preferable method in males than females do. But poisoning was highly preferred by females than male patients. 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 [22, 7] and this was consistent with our studies.

### Limitation of the study

Limitation of the studies are its cross sectional study, sensitivity nature of the issue up on facility based study.

### 6. Conclusion and recommendation

The prevalence of suicide ideation and attempt were high. Being chronic alcohol drinker, having mental illness, having chronic medical illness and, having family history of suicide were seem to be significantly associated with suicide ideation and attempt. Hanging and poisoning were the most common methods used in suicidal attempt. A big number of patients were at risk of committing suicide.

### Based on these findings I would like to forward the following recommendations

All patients visiting emergency OPD has to be screened for suicidality

The knowledge of identified risk factors has to be used in patient education.

Researchers should plan and implement large scale study that can inform the policy makers in addressing identified risk factors.

### Acknowledgment

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### Dedication

I dedicate this work to my late sister MESERET MEGERSA, who toiled day and night to lay the foundation stone of my educational career, were I don't have someone nearby except her; "after all things of mine", whom I suddenly miss forever while I am on this lesson.

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