



The Prevalence and associated factors of suicidal ideation and attempts in
adolescent's attending St Paul Hospital Millennium Medical Collage, Pediatrics
Clinic's, A Cross-sectional study in Addis Ababa, Ethiopia

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I. Acknowledgment

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IV. Abstract

Background

Adolescent suicide, a significant global public health concern, is often overlooked in middle and low-income countries, highlighting the neglect of this issue in public health. Suicide is now the 10th leading cause of death worldwide and the 3rd leading cause of death between the ages of 15–24 years. 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.

Objective

The study aimed to assess the prevalence and associated factors of suicidal ideation and attempts among adolescents attending care at St Paul Hospital Millennium Medical Collage Pediatrics department during the study period.

Methodology

An institution-based cross-sectional study was conducted on adolescents aged 10-19 attending SPHMMC throughout August 1, 2023-October 30, 2023 E.C. The data was collected using a standard questionnaire using a pretested structured questionnaire using the Composite International Diagnostic Interview (CIDI) was used to assess suicide. PHQ-9-(A), the Oslo social support instruments were used to assess associated factors. Computed using bivariate and multivariate binary logistic regressions to assess factors associated with suicidal ideation and attempts. A total of 302 of 317 adolescents participated in the study (95.3% response rate). The sample size is calculated using a single population formula, taking into consideration a 5% margin of error, 95% confidence level, and 27.4% proportion used from a previous study with a similar study population with addition of 5% non-response rate. Statistical significance was declared at P-value <0.05. Participants were selected using proportional stratified sampling technique by considering their average monthly visit in each follow-up and regular outpatient visit.

Result

The finding of this study revealed that the prevalence of suicidal ideation and attempt were 12.6% and 6 % respectively, In multivariate analysis those participants aged 15-19(Adjusted Odd ratio(AOR)- 5.2, 95%CI=1.44, 18.73), Study participants of a widowed

families (AOR=6.6, 95%CI=1.08, 40.63), those with family history of mental illness (AOR=7.6, 95%CI=1.81, 32.05), participants having poor social support (AOR=2.9, 95%CI=1.60, 14.70) and those having depression using PHQ9 (AOR=14.1, 95%CI=1.82, 39.31) were significantly associated with suicidal ideation. Participants that have experienced loss of a family member had 10.4 folds increase in attempting suicide compared to those that experience this (AOR=10.4, 95%CI=3.10, 36.49) and study participant having depression had an increase of 12.6 folds in attempting suicide compared to those that didn't have depression (AOR=12.6, 95%CI=2.42, 65.77).

Conclusion

The result suggests that the magnitude of suicidal ideation and attempts is high and we recommend early suicide-focused regular screening and linkage with mental health service providers. Additionally to educate healthcare providers, support peer connections, address medication side effects, involve parents and caregivers, and have an ongoing support in order to address adolescent suicide effectively.

Keywords: Suicide Ideation, Suicide attempt, Adolescent,

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VI. Acronyms

ART	Antiretroviral therapy
AOR -.....	Adjusted Odds Ratio
CDC	Center for disease control
CI	Confidence interval
CIDI	Composite International Diagnostic Interview
DM	Diabetes mellitus
DSM	Diagnostic and Statistical Manual of Mental Disorders,
HIV	Human immunodeficiency virus
N	Total Sample size
OSSS	Oslo Social Support Scale
PHQ-9-(A)	Patient Health Questioner for adolescents
PHO	Pediatrics Hemato-oncology
PTSD	Post traumatic stress disorder
ROPD	Regular Out Patient Department
SPHMMC	St.Pauls hospital medical millennium college.
SPSS	Statistical package for social sciences
WHO	World Health Organization
WMH	World Mental Health

1. Introduction

1.1 Background

Suicide is derived from the Latin word for “self-murder.” It is a fatal act that represents the person’s wish to die. There is a range, however, between thinking about suicide and acting it out. Some plan for days, weeks, or even years before acting, while others take their lives seemingly on impulse without premeditation(1). Suicide among adolescents is a serious public health problem worldwide and is preventable.

High rates of suicide, suicide attempts, and suicidal ideation became a public health problem. In adolescence, suicide is the third leading cause of death(2, 3). Suicide attempts are up to 20 times more frequent than complete suicides (1). Suicidal ideation is considered a predictor of suicide attempts. In this sense, suicidal ideation could be considered a first step to increasing completed suicide risk. Therefore, it’s important to consider suicidal behaviors as a continuum construct following a pattern of ideation, planning, attempts, and completed suicide and to identify its beginning. The onset age of suicidality is between 10 and 15 years(4). Besides contributing to lethal outcomes, suicidal ideation in early adolescence can produce negative consequences for a lifetime. Adolescents who reported suicidal ideation have a higher probability of presenting an axis I disorder - according to the DSM-V; problem behaviors and poorer coping abilities, low self-esteem levels, and interpersonal relations. To avoid these negative outcomes, prevention strategies are necessary as well as instruments to identify suicidal ideation risk factors in the early years of adolescence.

In the general public, the annual global suicide rate is 11.4 per 100, 000 population, or one death every 40 seconds. It is estimated to contribute over 2.4% of the global burden of disease by the year 2020, and the rate of death because of suicide will increase to one every 20 seconds (5). Suicide is now the 10th leading cause of death worldwide and the 3rd leading cause of death between the ages of 15–24 years(5).

Globally, the majority of deaths by suicide occurred in low-and-middle-income countries (79%), where most of the world's population lives (84%). Regarding age, more than half (52.1%) of global suicides occurred before the age of 45 years. Most adolescents who died by suicide (90%) were from low and middle-income countries where nearly 90% of the world’s adolescents

live(2). For ideation with a plan for both sexes, the prevalence ranged from 1.7% in the United Republic of Tanzania to 15.3% in Benin and Kenya 15.3%. The African Region showed the highest overall pooled prevalence of suicide ideation 21.6% and no evidence of gender differences (6). By contrast, suicide ideation in the Region of the Americas was markedly higher in females than males, with an estimated prevalence ratio of 1.7(6, 7).

1.2. Statement of the problem

Adolescent suicidal behavior, which is an important public health problem worldwide, is a neglected public health issue, especially in middle and low-income countries Suicide is now the 10th leading cause of death worldwide and the 3rd leading cause of death between the ages 15–24 years(2, 6). Screening positive for suicide risk on validated instruments may not only be predictive of future suicidal behavior but may also be a proxy for other serious mental health concerns that require attention(8).

Men commit suicide more than four times as often as women, regardless of age or race, in the United States even though women attempt suicide or have suicidal thoughts three times as often as men(1). Factors associated with an illness that contribute to both suicides and suicide attempts are loss of mobility, especially when physical activity is important to occupation or recreation; disfigurement, particularly among women; and chronic, intractable pain. Patients on hemodialysis are at high risk. In addition to the direct effects of illness, the secondary effects, for example, disruption of relationships and loss of occupational status are prognostic factors. Certain drugs can produce depression, which may lead to suicide in some cases. Among these drugs are corticosteroids, antihypertensive, and some anticancer agents. Alcohol-related illnesses, such as cirrhosis, are associated with higher suicide rates(1).

Risk situations and events that may lead to suicide attempts or suicide include situations that individuals perceive as harmful, even if they may not objectively be so. For example, vulnerable children and adolescents may interpret minor incidents as deeply hurtful and respond with anxiety and disordered behavior. Similarly, young people at risk of suicide may view these situations as threats to their self-image and experience a sense of wounded personal dignity. Other factors that can trigger suicidal thoughts or actions include family problems, separation from friends or romantic partners, the death of a loved one, the end of a romantic relationship, conflicts or losses in relationships, legal or disciplinary issues, peer pressure or acceptance of

self-destructive behaviors, bullying and victimization, disappointment with academic performance or failure in studies, high stress levels during exams, unemployment and financial difficulties, unwanted pregnancy or abortion, and contracting HIV or other sexually transmitted diseases(10).

Suicidal behavior is seen in the context of a variety of mental disorders, most commonly bipolar disorder, major depressive disorder, schizophrenia, schizoaffective disorder, anxiety disorders (in particular, panic disorders associated with catastrophic content and PTSD flashbacks), substance use disorders (especially alcohol use disorders), borderline personality disorder, antisocial personality disorder, eating disorders, and adjustment disorders. It is rarely manifested by individuals with no discernible pathology unless it is undertaken because of a painful medical condition to draw attention to martyrdom for political or religious reasons, or in partners in a suicide pact, both of which are excluded from this diagnosis, or when third-party informants wish to conceal the nature of the behavior(9).

1.3. Rational of the study

Although not all suicidal ideation materializes into suicide attempts or suicide, it is the first step on the path to suicide. There are a high number of population-based studies about this issue, although just a few of these investigations were carried out in Ethiopia. And there is sparse data in the health care setting.

Therefore this study was carried out to determine the prevalence and associated factors of suicide ideation and attempt among adolescents determining such information is useful in understanding the burden of mental health on adolescent health. This information may also be useful in targeting scarce mental health resources in the provision of interventions that reduce the occurrence of suicide in Ethiopia.

2. Literature review

Suicidal behavior encompasses various aspects, such as having thoughts or ideas about suicide, making plans for suicide, attempting suicide, and ultimately dying by suicide through a specific action. While not all individuals with suicidal thoughts will progress to suicide attempts or death by suicide, these thoughts are considered a crucial initial step towards the act of suicide.

Therefore, they are regarded as strong indicators of potential future suicide. It is estimated that around 25%-30% of individuals who attempt suicide will make additional attempts in the future. The frequency, method, and lethality of these attempts can vary significantly among individuals(9).

Early adolescence is a period of significant change, during which children undergo the physical changes associated with puberty and face new challenges in their transition to middle school where they encounter increased peer and academic pressures. Hence, thoughts about death and suicide become more common as children move through early adolescence (1).

The global age-standardized suicide rate was 10.5 per 100,000 populations in 2016. The global age-standardized suicide rate was higher in males (13.7 per 100 000) than in females (7.5 per 100 000)(2). In the United States, there are approximately 35,000 deaths by suicide each year, which is about 100 deaths per day. It is estimated that for every completed suicide, there are 25 suicide attempts. While there have been notable changes in suicide rates among certain groups over the past century, the overall rate has remained relatively constant at around 12 per 100,000 people throughout the 20th and early 21st centuries. Internationally, suicide rates vary, with countries like Lithuania, South Korea, Sri Lanka, Russia, Belarus, and Guyana having rates higher than 25 per 100,000 people, while countries like Portugal, the Netherlands, Australia, Spain, South Africa, Italy, and Egypt have rates lower than 10 per 100,000 people(1).

Globally, the majority of deaths by suicide occurred in low-and-middle-income countries (79%), where most of the world's population lives (84%). Regarding age, more than half (52.1%) of global suicides occurred before the age of 45 years. Most adolescents who died by suicide (90%) were from low and middle-income countries where nearly 90% of the world's adolescents live(2). For ideation with a plan for both sexes, the prevalence ranged from 1.7% in the United Republic of Tanzania to 15.3% in Benin and Kenya 15.3%. The African Region showed the highest overall pooled prevalence of suicide ideation 21.6% and no evidence of gender differences. By contrast, suicide ideation in the Region of the Americas was markedly higher in females than males, with an estimated prevalence ratio of 1.7(2, 7).

In a meta-analysis and systematic review conducted in Ethiopia, it was found that the occurrence of suicidal thoughts and attempts varied between 1% to 55% and 0.6% to 14%, respectively.

Another study conducted among students in Ethiopia showed that the prevalence of suicidal thoughts and attempts ranged from 14% to 58.3% and 4.4% to 7.4%, respectively (17). Despite this data there are no national data on the prevalence of suicidal ideation especially in health care settings. Though different studies that were conducted across the country(10). Which are cross-sectional studies were conducted in different parts of the country, in high-school settings

In 2015 in Dangila Town, the occurrence of suicidal thoughts and attempts was found to be 22.5% and 16.2% respectively. The study also found that school absenteeism and a lack of social support were positively linked to suicidal thoughts, while poor social support and physical harm were positively associated with suicide attempts. Surprisingly, unlike previous research conducted in low-income countries, this study did not find any connection between gender or alcohol use and suicidal thoughts or attempts. Overall, the study revealed that approximately one in five adolescents in their sample had experienced suicidal thoughts, while one in six had attempted suicide.(11).

In 2018 at SPHMMC and St. Peter Hospital discovered that among HIV-positive youth taking ART drugs, the occurrence of suicidal thoughts and attempts was found to be 27.1% and 16.9% respectively. The study also found that being female, experiencing a family death, having a WHO Clinical stage 3 or 4, having co-morbid depression, and perceiving HIV stigma were significantly linked to suicidal thoughts. Additionally, these same factors, along with poor social support, were strongly associated with suicide attempts.(13).

In 2021, a study conducted in northwestern Ethiopia found that among young people who use substances, 54 individuals (14.5%) had suicidal thoughts, with a confidence interval of 95% between 11.0% and 18.0%. Additionally, 37 individuals (9.9%) had attempted suicide, with a confidence interval of 95% between 7.0% and 13.0%. Importantly, the study revealed that the suicide attempts occurred following the presence of suicidal thoughts, highlighting the seriousness of these behaviors (18).

In 2022 in Anywaa zone, Gambella, and Southwest Ethiopia in a similar population group found that 62.3% of respondents reported they had heard others talk about their wish to die by suicide, 64.2% of youth said they had heard many youths claim that “I feel like there is no way out”, 43.3% reported having seen someone with the signs of planning a suicide such as obtaining a

weapon or writing a suicide note. About 64.2% of participants said, “My family would be better off without me.” The majority of respondents were in the age groups ranging from 26 to 30 years. The results on the patterns of suicide attempts showed that hanging and drug overdose or poisoning were the most common patterns used by both men and women(12).

3. Objective

3.1 General Objective

- To assess the prevalence and associated factors of suicidal ideation and attempt among adolescents attending care at St. Paul Pediatrics department ROPD; Follow up clinics from August 1, 2023 to October 30, 2023 G.C.

3.2 Specific Objective

- To assess suicidal ideation and attempt with different Sociodemographic variables;
- To Determine and correlate suicidal ideation and attempt with a social support system and associated comorbidities;
- To identify depression and substance abuse in these at-risk populations and see their relation with suicidal ideation and attempt

4. Methodology

4.1.1 Study setting

Addis Ababa is the capital city of Ethiopia. SPHMMC is a specialized center that is found in Addis Ababa. It is the leading teaching and tertiary referral hospital under the federal ministry of Ethiopia. With an annual average of 200,000 patients and a catchment population of more than 5 million. The Pediatrics department services include Inpatient, Outpatient, Emergency, Intensive care and Follow up clinics. Regular OPD gives service to over 24,000 patients per year of which 6000 are new cases, There are around eleven distinct follow up clinics which are led by subspecialist and general pediatrician with an addition of resident physicians, Interns, Nurses, Runners, Data clerks. The study populations are adolescents aged 10-19 years of age visiting SPHMMC, Pediatrics department at the given three month's period to the Regular Outpatient department and follow-up clinics.

4.1.2 Study period

August 1, 2023, – October 30, 2023, G.C (Three month's period)

4.1.3 Study design

An institution based cross-sectional study, with prospective data collection

4.1.4 Study population

Adolescents aged 10-19 attending care at St Paul Pediatrics Outpatient department & Follow up clinics, meeting the inclusion criteria.

4.2.1 Inclusion criteria

Adolescents aging 10-19 attending Regular and follow-up clinics in the specified timeframe

4.2.2 Exclusion criteria

1. Participants seriously ill and unable to communicate were excluded.
2. Adolescents attending care primarily for suicide related issues and already on follow up for the case were also excluded

4.3.1 Sample Size

The single population proportion formula was used with a 5% margin of error, 95% confidence

level, 5% non-response rate;
$$n = \frac{(Z_{\frac{\alpha}{2}})^2 P(1-P)}{d^2}$$

P= 27.1% -Is the prevalence of suicidal ideation which was taken from a similar study done in the similar population background (13).

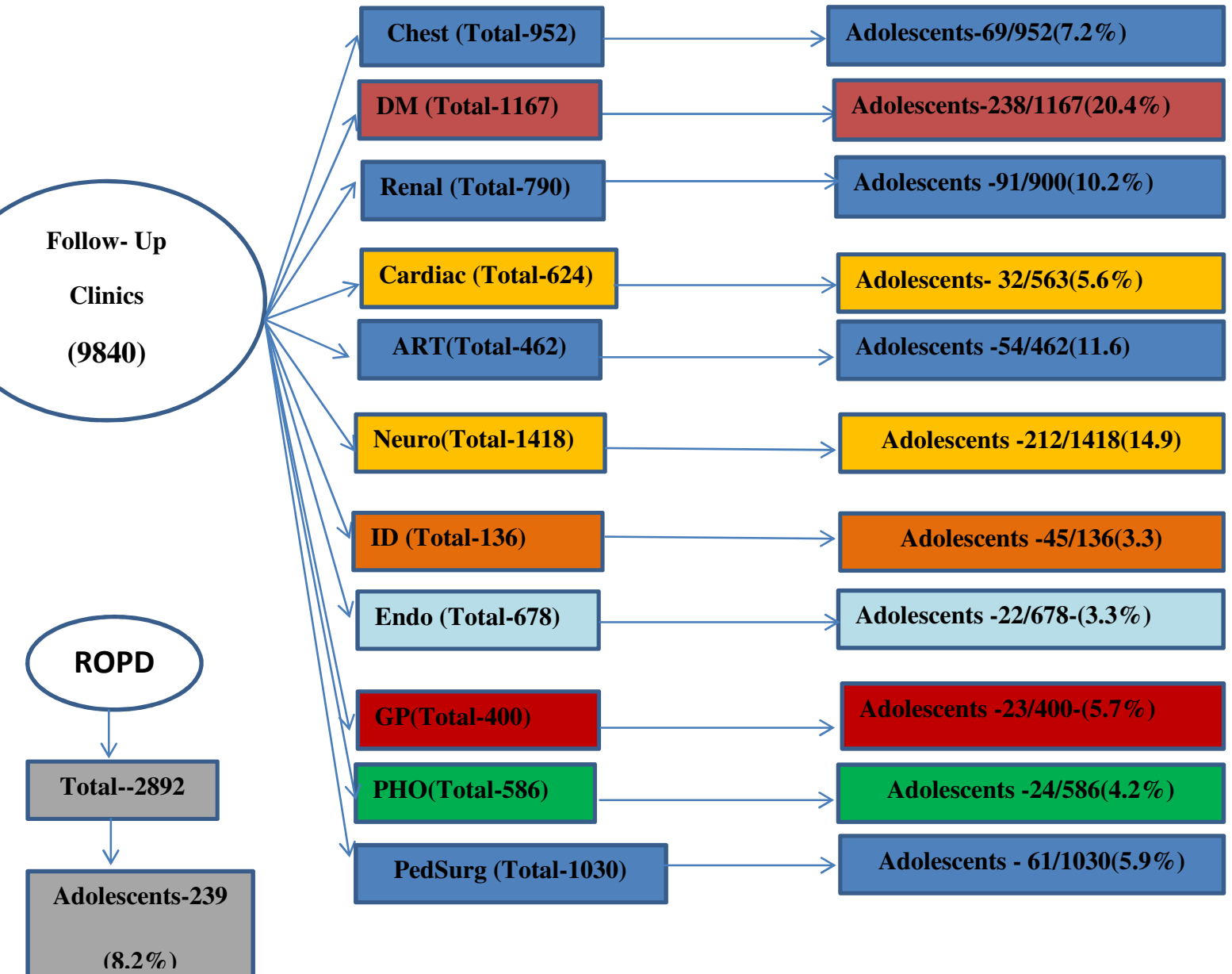
Z=1.96 at α level that is the standard score corresponding to 95% confidence interval, d= margin of error is 0.05

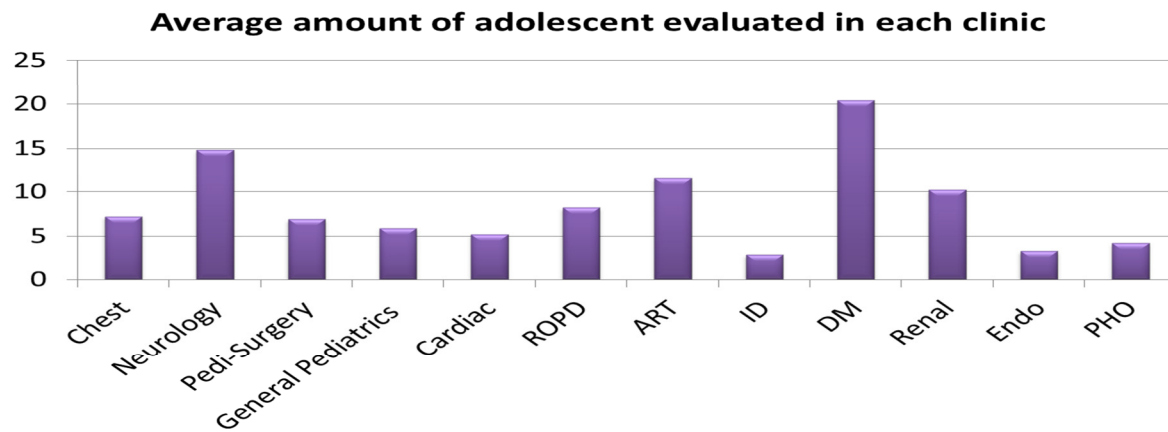
❖ So based on the previous formula the $N = (1.96)^2 (0.271) (1-0.271) / 0.0025 + 15 = 317$

4.3.2 Sampling technique

Participants were selected for interviews using the stratified sampling method with their monthly average visits kept in consideration. In the past six months, there were a total of 2,892 patients seen in the Regular Outpatient department, with 239 of them being adolescents aged 10-19. This accounts for an average of 8.2% of the total patient population.

Over the Follow clinics a total number patients seen over prior six month Period was 9840, then two level stratification is done, The first to determine each clinic number of patients seen and second strata to identify number adolescents seen at each clinic, then calculate average % in each to clinic in order to estimate number of patients to be screened for the research.





PHO-Pediatric's hemato-oncology, ID-Infectious disease, DM-Diabetes, ART-Antiretroviral therapy

Fig 1- Proportion of the study participants assigned based on stratified sampling technique

4.4 Measurements

Study variables

Independent variable

Age	Sex
Living arrangement	Homelessness
Family history of mental illness	Educational status
Parental Marital status	Family death
Substance abuse	Social support
Depression	Parental educational status

Dependent variable

- ❖ Suicidal ideation
- ❖ Suicidal attempt

4.5 Instruments

Suicidal ideation and attempts was assessed using the suicidality module of the 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(14). To assess suicidal ideation, participants were asked: “Have you ever seriously thought about committing suicide?” If “Yes”, the patient has suicide ideation. For suicidal attempts, participants were asked: “Have you ever attempted suicide?” if “Yes”, the patient has made a suicide attempt. The method of suicide attempt and reason for the attempt was assessed. Depression was measured by a scoring system that is modified for adolescents PHQ-9-(A)(15). A cut-off point of ten and above was used for depression. Social support was measured by the Oslo social support scale(16). The scale ranged from 3–14, and the scores 3–8, 9–11, and 12–14 stood for “poor”, “moderate” and “strong” social support, respectively. To assess current substance use, respondents were asked: Have you ever used a substance (non-medical use) in your lifetime? And if the response is yes further questions were asked on the specific substance and frequency of its use. Items on socio-demographic factors (age, sex, ethnicity, religion, marital status, educational status, and occupational status) were adopted from a variety of literature.

4.6 Data collection

Data was collected through face-to-face interviews using structured questionnaire by trained physicians using Amharic version of the tool. The questionnaire is designed in English and was translated into Amharic and back to English to maintain consistency. Data collectors were trained on introduction to suicide, and associated factors and skills on how to assess this sensitive issue, interviewing skills, sampling, recruitment, and the ethical aspects of the research.

The data was collected prospectively and those patients displaying positive ideation and attempted to pediatrics psychiatry clinic.

4.7 Data Processing and Analysis

All the data was checked for completeness and consistency and entered into Google forms later coded to Microsoft excel then exported to SPSS version 26.0 for analysis. Descriptive and bivariate logistic regression analyses were used to compute the frequency distribution and to test

the association between independent and dependent variables, respectively. Factors associated with suicidal ideation and attempts was selected during the bivariate analysis with a p-value <0.05 for further multivariate analysis in which variables with less than 0.05 P-value at a 95% confidence interval were considered as statistically significant.

4.8 Operational definition

Suicide: - Self-inflicted death with explicit or implicit evidence that the person intended to die.

Suicidal ideation: - Thought of serving as the agent of one's death; seriousness may vary depending on the specificity of the suicidal plan and the degree of suicidal intent.

Suicidal intent:-Subjective expectation and desire for a self-destructive act to end in death.

Suicidal attempt: - self-injurious behavior with a nonfatal outcome accompanied by explicit or implicit evidence that the person intended to die.

Adolescent: - defined as individuals between 10 and 19 years of age

4.9 Data Quality Control and Management:

To assure the quality of data, structured data collection was used. Data collectors were trained by the investigator. Each day the data was checked for accuracy and completeness. The participant's names were not collected and the data was de-identified after the questionnaire was completed.

The data was then stored in a secured location and only the investigator had access to this location.

4.9.1 Ethical clearance

The ethical clearance was obtained from SPHMMC- IRB (Institutional review board), confidentiality of the information was ensured using codes rather than names during registration data. Informed and written consent was collected from the parents or caretakers, and assent was taken from the adolescents.

5. Result

5.1 Sociodemographic characteristics of the study participants

A total of 302 of the estimated 317 adolescents participated in the study (95.3% response rate), 15 of the study participants did not respond to all of the questions and were, therefore, excluded from the analysis. Fifty-three percent of the study participants were in the age group of 10-14 years and 53% were female. Half of the study participants were orthodox in religion and 71.9% were from Addis Ababa and 79.8% of the parents of the participants were married. Seventy-nine percent of the participants are attending at secondary education level and 47.7% of the family had completed secondary education level. Nearly 23% of the participants' have reported loss of at least one family member, while 10.6% of the participants had a family member with a mental illness. The vast majority of individuals in the study, 99%, were residing with their families, whereas only a small percentage, 1%, of the children was without a home.

Table 1. The Sociodemographic characteristic of adolescent's age group from 10-19 years attending St Paul Hospital MMC, Pediatrics department, 2023.

Variable	Frequency	Percent
Age in years		
10-14	160	53
15-19	142	47
Sex		
Female	160	53.0
male	142	47.0
Religion		
Muslim	86	28.5
Orthodox	153	50.7
Protestant	63	20.9
Residence		
Addis Ababa	217	71.9
Outside of Addis Abeba	85	28.1
Parental Marital status		
Married	243	80.4
Divorced	41	13.6
Widowed	18	6.0
Educational status		
Illiterate	1	0.3
Primary	63	20.9
Secondary	237	78.5
Collage and above	1	0.3

Parental Educational status		
Illiterate	37	12.3
Primary	54	17.9
Secondary	144	47.7
Collage and above	67	22.2
Family death		
Yes	69	22.8
No	233	77.2
Family history of mental illness		
Yes	32	10.6
No	270	89.4
Family history of mental illness		
Yes	32	10.6
No	270	89.4
Living arrangement		
Alone	3	1.0
With family	299	99.0
Homelessness		
Yes	3	1.0
No	299	99.0

5.2 The characteristics of Oslo social support scale (OSSS)

Forty five percent of the individuals in the study had a support system of 3-5 people that they could rely on during times of significant difficulty and 54% of the participants disclosed that people show some degree of concern and interest towards them and around 22.8% of the participants answered some degree of difficulty of getting help from their neighbors.

Figure 2- Oslo social support scale

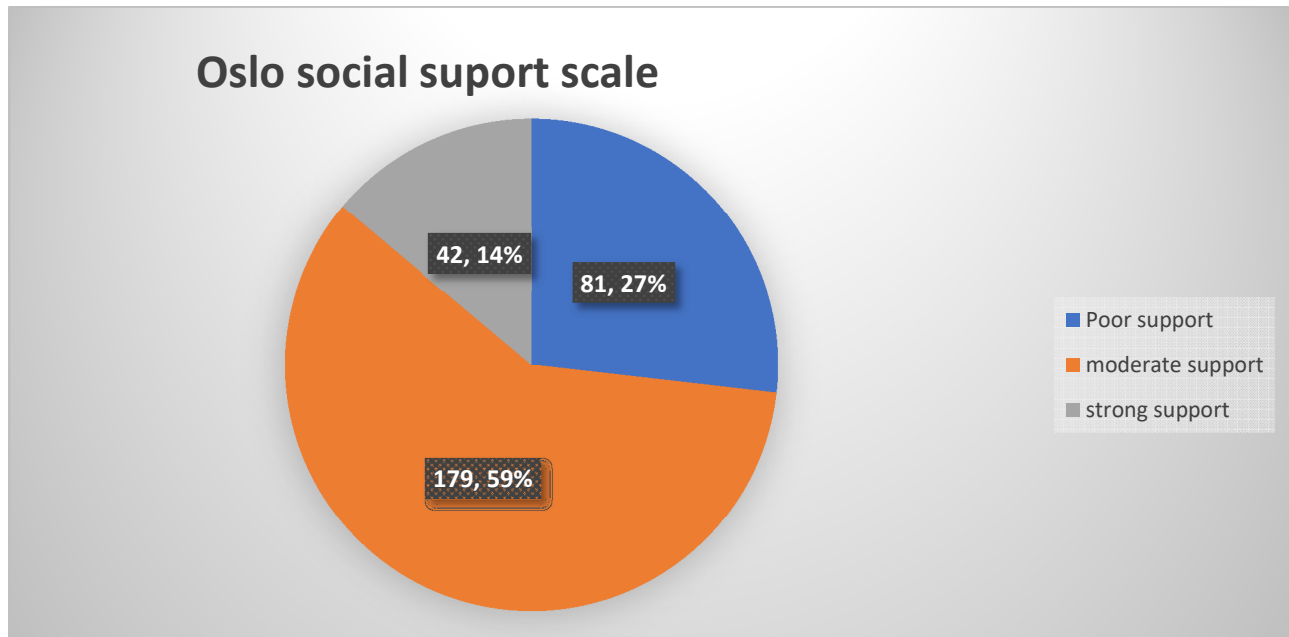


Table 2. Result of the Oslo social support scale

OSLO Social support variable	Frequency	Percent
How many people are so close to you that you can count on them if you have great personal problems?		
None	12	4.0
1-2	137	45.4
3-5	115	38.1
>5	38	12.6
How much interest and concern do people show in what you do?		
Uncertain	58	19.2
Little	22	7.3
Some	163	54.0
Alot	59	19.5
How easy is it to get practical help from neighbors if you should need it?		
Very difficult	13	4.3
Difficult	56	18.5
Possible	154	51.0
Easy	70	23.2
Very easy	9	3.0

5.3 Depression related characteristics of the study participants

Only 4% of the study participants had positive screen for depression using PHQ9 (A) assessment measurement. Regarding to the specific PHQ(9)A- assessment variable, 81.1% of the participants didn't experience symptoms of Feeling down, depressed, irritable, or hopeless and 83.8% of the participants didn't report any loss their interest and 91.1% of the participants didn't elicit any Trouble concentrating on things like school work, reading, or watching TV.

Eighteen percent of the study participants felt depressed or sad in most of the days but around 87.7% of the participants didn't complain any difficulty to do their work or take care of things at home.

Table 3. The study participant's characteristics on PHQ9 depression assessment

Variable	Not at all (0)	Several days (1)	More than half of the days (2)	Nearly every day (3)
Feeling down, depressed, irritable, or hopeless?	245(81.1%)	45(14.9%)	5(1.5%)	7(2.3%)
Little interest or pleasure in doing things?	253(83.8%)	36(11.9%)	9(3%)	4(1.3%)
Trouble falling asleep, staying asleep, or sleeping too much?	268(88.7)	27(8.9%)	3(1%)	3(1%)
Poor appetite, weight loss, or overeating?	266(88.1%)	31(10.3%)	2(0.7)	3(1%)
Feeling tired, or having little energy?	253(83.8%)	38(12.6%)	7(2.3%)	4(1.3%)
Feeling bad about yourself or feeling that you are a failure, or that you have let yourself or your family down?	272(90.1%)	26(8.6%)	4(1.3%)	0
Trouble concentrating on things like school work, reading, or watching TV?	275(91.1%)	22(7.3%)	3(1%)	2(0.7%)
Moving or speaking so slowly that other people could have noticed? Or the opposite-being so fidgety or restless that you were moving around a lot more than usual	286(94.7%)	12(4%)	3(1%)	1(0.3%)
Thoughts that you would be better off dead, or of hurting yourself in some way?	272(90.1%)	28(9.3%)	2(0.7%)	0

Variable	frequency	Percent
In the past year have you felt depressed or sad most of the days, even if you felt okay sometimes?		
Yes	54	17.9
No	248	82.1
How difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?		
Extremely difficult	1	.3
Very difficult	12	4.0
Somewhat difficult	24	7.9
Not difficult at all	265	87.7

5.4 Substance abuse related characteristics

Around 5% of the study participants reported of ever using recreational drugs in their life time.

Out of whom 78.6%, reported of using alcohol at least once, and 14.3% reported of using khat.

Table 4. Substance abuse related characteristics

Have you ever used recreational drugs in your lifetime?		
Yes	14	4.6
No	288	95.4
If yes types of drugs (n=14)		
Alcohol drinking	11	78.6
Khat Chewing	2	14.3
Glue sniffing (Mastish)	1	7.1

Khat- is a stimulant plant, Mastish-glue sniffing

5.5 Prevalence of suicidal ideation and attempt

The prevalence of suicidal ideation and attempts were 12.6 %(Female-25, Male 13) and 6% (Female 10, Male 8) respectively. Among the respondents who had positive ideation around 28% had thought about it at least once, while 31.5% of them had thoughts at least 2 times and 5% of the study participants claimed they had thought about committing suicide upto 10 times in their life time.

Six percent of the study participants had attempted suicide and out of whom eight of whom (44.4%) attempted using drugs, Four (22.4%) with use of poisons other drugs, use of knife/sharp and hanging accounted for 16.7 %(Figure 5). Out of those the 18 participants attempted suicide five of them said death of a family member were their reason for the attempt, while four of them disclosed family conflict, two of the participants said they felt they didn't have any way out and

the other two said because of academic failure. In this study both suicide ideation and attempt were relatively higher among boys compared to girls (Figure 4).

Concerning the seriousness of suicide attempt, 3(17%) of study participants reported of having attempted suicide to “cry for help”, 9(50%) report a serious attempt to kill themselves and it was only luck that they did not succeed.

Figure 3-Prevalence of suicidal ideation and attempt

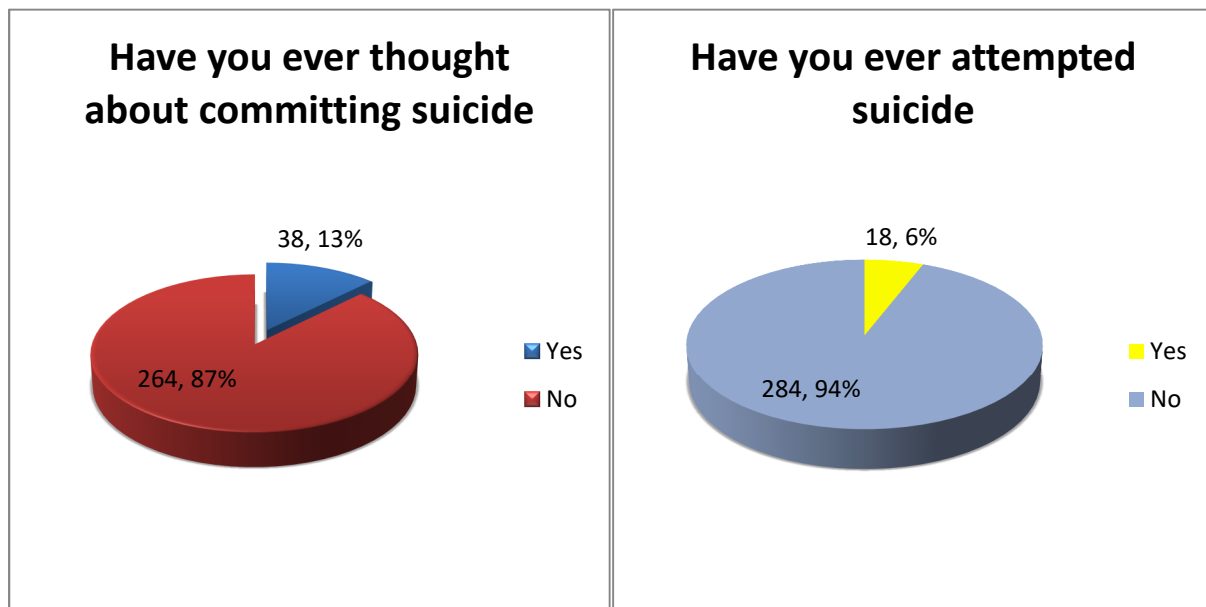


Figure 4-Prevalence of suicidal ideation with relation to gender

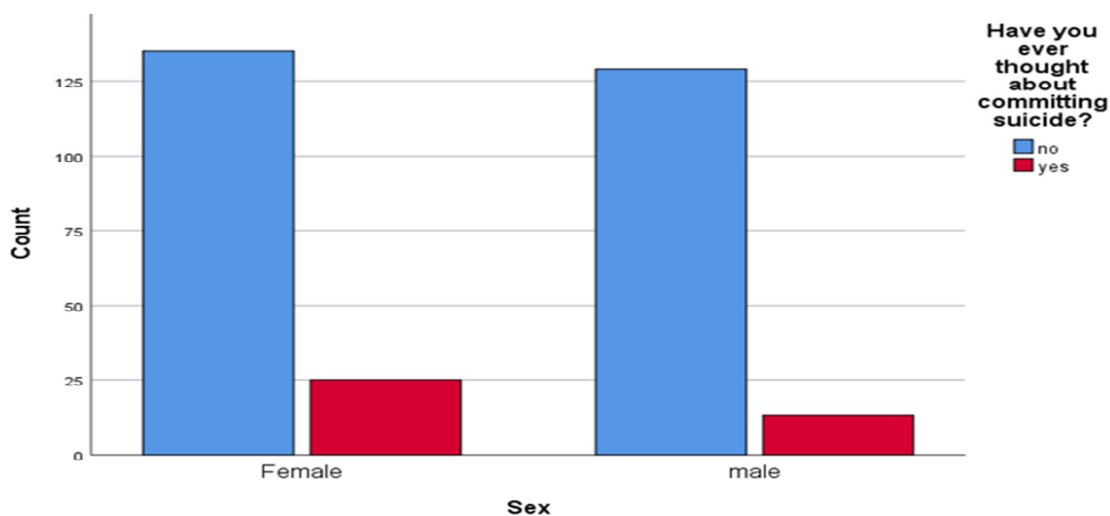


Table 5. Prevalence of suicidal ideation and attempt

Variable	Frequency	Percent
Have you ever thought about committing suicide?		
No	264	87.4
Yes	38	12.6
Number of thoughts committing suicide (n=38)		
1	9	23.7
2	12	31.6
3	9	23.7
4	2	5.3
5	1	2.6
6	2	5.3
8	1	2.6
10	2	5.3
Have ever thought about committing suicide in the past month?		
Yes	10	3.3
No	292	96.7
Have you ever attempted suicide		
Yes	18	6.0
No	284	94.0
Mechanism of attempted suicide (n=18)		
Drugs	8	44.4
Hanging	3	16.7
Knives or other sharp objects	3	16.7
Poisoning other than drugs	4	22.2
Have you ever attempted suicide in the past month		
Yes	17	5.6
No	285	94.4
Reason for attempt (n=17)		
Academic failure	2	11.8
Death of a family member	5	27.8
Family conflict	4	23.5
Feel like there is no other way out	2	11.8
Insult by her friend in school	1	5.9
Left from previous school and friends, feels the previous school understood her more, and are abusive at the current school	1	5.9
Medical Illness	1	5.9
School conflict with a friend	1	5.9
Are you having thoughts of killing yourself right now?		
Yes	6	2.0
No	296	98.0

Table 6:- Cross-table relation between site of evaluation and whether the participants had suicide attempt

		Have you ever attempted suicide		Total
		yes	no	
Your site	Cardiac	0	16	16
	Chest Clinic	0	22	22
	DM Clinic	0	62	62
	Endocrine	0	5	5
	General Pediatrics Clinic	2	16	18
	Hemato-Oncology Clinic	1	12	13
	ID Clinic	0	9	9
	ID Clinic, ART	11	24	35
	Neurology Clinic	1	43	44
	Neurology Clinic, ID Clinic	0	1	1
	Pedi-Surgical	0	21	21
	Renal Clinic	0	31	31
	ROPD	3	22	25
	Total	18	284	302

This study showed that around 11 of the participants from those who had suicidal attempt where from ART clinic (HIV Clinic), 3 were from regular outpatient department, 2 from General Pediatrics Clinic, 1 from Neurology clinic and 1 from Pediatrics hemato-oncology clinic

5.6 Determinant factors for suicidal ideation

Accordingly age, sex, parent marital status, parent education level, death of a family member, family history of mental illness, poor social support and depression were an association with thought committing suicide by using bivariate logistic regression. The multivariate logistic regression revealed that study participant whose age of 15-19 years had 5.2 folds increase in having suicidal ideation compared to age 10-14 (AOR=5.2, 95%CI=1.44, 18.73) and study participant whose family of widowed had 6.6 folds increase for positive suicidal ideation compared to having married family (AOR=6.6, 95%CI=1.08, 40.63). The study participant who had experienced death of family member were having a 4.2 folds increase in having suicidal thoughts compared to those that didn't (AOR=4.2, 95%CI=1.04, 17.08) and study participant having family history of mental illness had 7.6 folds increase in having suicidal thoughts compared to their counterparts (AOR=7.6, 95%CI=1.82, 32.05).

The study participant having poor social support had 2.9 folds increase in having suicidal ideation compared to those who have a strong support (AOR=2.9, 95%CI=1.60, 14.70) and the study participant having depression using PHQ9(A) were having a 14.1 fold increase in ideation for suicide compared to those that didn't (AOR=14.1, 95%CI=1.82, 39.31) and the study participant having depression or sad in most of the days in the past one years had 13.8 folds increase compared to its opposite compartment (AOR=13.8, 95%CI=1.82, 47.93).

Table 7. The bivariate and multivariate logistic regression of association between independent variable and thought about committing suicide among age group from 10-19 years attending SP MMC, Pediatrics department

Variable	Thought committing suicide		P-value	COR with 95% CI	P-value	AOR with 95% CI
	Yes	No				
Age in years						
10-14	9	133	1			
15-19	29	131	0.003	3.3(1.49, 7.18)	0.012	5.2(1.44, 18.73)
Sex						
Female	25	135	0.094	1.8(0.90, 3.75)	0.063	3.1(0.94, 10.51)
Male	13	129	1			
Parent marital status						
Married	15	219	1			
Divorced	9	32	0.002	4.1(1.66, 10.16)	0.181	2.7(0.63, 12.09)
Single	4	5	0.001	11.7(2.84, 48.08)	0.101	6.4(0.66, 62.89)
Widowed	10	8	0.000	18.3(6.28, 53.03)	0.041	6.6(1.08, 40.63)
Parent education level						
Illiterate	10	27	0.019	3.8(1.24, 11.41)	0.971	0.96(0.13, 7.25)
Primary	7	47	0.481	1.5(0.48, 4.81)	0.503	0.52(0.08, 3.55)
Secondary	15	129	0.742	1.2(0.44, 3.19)	0.952	1.1(0.21, 5.23)
Collage and above	6	61	1			
Family died						
Yes	22	47	0.000	6.3(3.09, 13.00)	0.044	4.2(1.04, 17.08)
No	6	217	1		1	
Family history of mental illness						
Yes	14	18	0.000	7.9(3.53, 18.01)	0.005	7.6(1.81, 32.05)
No	24	246	1		1	
OSLO social support scale						
Poor	22	59	0.030	3.5(1.13, 11.08)	0.018	2.9(1.60, 14.70)
Moderate	12	167	0.528	0.68(0.21, 2.23)	0.949	1.1(0.19, 5.69)

Strong	4	38	1		1	
Depression using PHQ9						
Yes	10	2	0.000	16.8(9.76, 24.29)	0.011	14.1(1.82, 39.31)
No	28	262	1		1	
In the past year felt depressed or sad most of the days						
Yes	29	25	0.000	13.8(3.12, 72.35)	0.000	13.8(3.97, 47.93)
No	9	239	1		1	

5.7 Determinant factors for suicidal attempt

Family death, family history of mental illness, having poor social support and presence of depression were an association in this study for those who have attempted suicide by bivariate logistic regression. The multivariate logistic regression revealed that children having family death were 10.4 folds increase its attempting suicide compared to those that didn't experience this (AOR=10.4, 95%CI=3.10, 36.49) and study participant having depression had an increase of 12.6 folds in attempting suicide compared to those that didn't have depression (AOR=12.6, 95%CI=2.42, 65.77).

Table 8. The bivariate and multivariate logistic regression of association between independent variable and attempted suicide among age group from 10-19 years attending St Paul Hospital MMC, Pediatrics department

Variable	Have you ever attempted suicide		P-value	COR with 95% CI	P-value	AOR with 95% CI
	Yes	no				
Age in years						
10-14	6	136	1		1	
15-19	12	148	0.236	1.8(0.67, 5.03)	0.468	0.64(0.19, 2.15)
Family death						
Yes	12	56	0.000	10.6(3.62, 30.92)	0.000	10.4(3.10, 36.49)
no	5	228	1		1	
Family history of mental illness						
Yes	6	26	0.003	4.9(1.72, 14.32)	0.233	2.3(0.59, 8.77)
no	12	258	1		1	
OSLO social support scale						
Poor	12	69	1		1	
Moderate	5	174	0.001	0.17(0.06, 0.49)	0.097	6.2(0.72, 54.02)
strong	1	40	0.064	0.14(0.02, 1.12)	0.612	1.8(0.19, 16.67)
Presence of depression						
Yes	5	7	0.000	15.2(1.25, 54.48)	0.003	12.6(2.42, 65.77)
No	13	277	1		1	

6. Discussion

Suicidal ideation, attempts, and completed suicides in children are serious concerns that require immediate attention and intervention. It's essential for parents, caregivers, educators, and healthcare providers to be aware of warning signs that may indicate a child is experiencing suicidal thoughts. The finding of this study revealed that the prevalence of thought about committing suicide and attempting suicide were 12.6 % and 6% respectively. This finding was in line with the study done in Republic of Tanzania, Benin and Kenya, and with the Ethiopian meta-analysis (2, 7, 17). The study is also in line with the study done in northwestern Ethiopia in Gonder (18). The finding was lower than the study done in SPMMC in 2018 and African pooled prevalence (7, 12). This variation could be explained by the smaller sample size used in the study and difference in study settings, since most of the studies were conducted in a school setting not in a health care setting.

In this study both suicide ideation and attempt were relatively higher among girls compared with boys, but the prevalence of suicide ideation was not significant common in girls compared to boys statistically ($P=0.063$). This finding is line with studies conducted in sub-Saharan countries (6) and in other Ethiopian studies like in dangla town study (11) and studies conducted among university students in Ethiopia (19).

In this study participant whose age of 15-19 years had 5.2 folds increase in having suicidal ideation compared to age 10-14 ($AOR=5.2$, $95\%CI=1.44, 18.73$). This might be due to Adolescents and young adults have a more advanced level of cognitive development compared to younger children. They may have a better understanding of death and its permanence, as well as the ability to plan and execute suicide attempts.

Study participants of widowed families had 6.6 folds increase in suicidal ideation compared to having both parents around ($AOR=6.6$, $95\%CI=1.08, 40.63$). This might be due to the loss of a parent can result in financial instability for the family, especially if the deceased parent was the primary breadwinner. Financial stressors such as difficulty paying bills, affording basic necessities, or experiencing housing instability can increase children's anxiety and depression, elevating their risk of suicide attempts.

The study participant having poor social support had 2.9 folds increased risk for having suicidal ideation compared to those with strong support (AOR=2.9, 95%CI=1.60, 14.70). This finding is line other studies conducted in Ethiopia like in the Fiche town study (10), Dangla Town study (11), Gonder university (19), LMIC study (6,7) and previous study done in health care setting (13). This could be explained with receiving social support enhances a sense of belongingness and ultimately decreases the likelihood of suicidal thoughts (19). One other potential explanation for this connection may be that experiencing neglect from neighbors, friends, family, and others can greatly contribute to feelings of hopelessness and low self-worth, ultimately leading to suicidal thoughts especially in young people (18). The study participant having depression using PHQ 9(A) had 14.1 folds increase risk in having suicidal thoughts compared to those that didn't (AOR=14.1, 95%CI=1.82, 39.31). This finding is also in line with most of the studies mentioned above (6, 7, 10-13).

7. Limitation

Our cross-sectional design has prevented us from reporting the casual relationships of the Associations we found. In addition, social desirability and recall bias might have also been the other limitations. Because the data collection method was face-to-face interviews, individuals might have given socially acceptable answers during the interviews, especially to substance related questions. The other limitation of the study is since it is a single institution study; the result can't be generalized to the general population.

8. Conclusion

The magnitude of suicidal ideation and attempts among adolescents were found to be high. Suicidal ideation was statistically significant in those with Age 15-19 years, Poor social support, family history of mental illness; lose a close family member and those with depression. While suicidal attempts was seen more those that have experienced family death and with depression.

9. Recommendation

We recommend early suicide focused regular screening and linkage with mental health service providers. Consider screening parameter for adolescents during follow up visit for depression, substance use and suicidal ideations.

Adolescents with chronic medical illnesses are at higher risk for suicidal thoughts and behaviors. To reduce this risk, we recommended to provide comprehensive mental health support, educate healthcare providers, foster a multidisciplinary approach, support peer connections, address medication side effects, involve parents and caregivers, and provide ongoing support.

Last recommendation is regarding follow up, Strengthening ongoing support and follow-up for adolescents who have previously shown signs of suicidal ideation or attempted suicide. This can include regular check-ins, counseling sessions, and involvement of mental health professionals.

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11. Annex

11.1 Full Questionnaire

Table 9-

	Study site	_____
100	Part I: Socio-demographic characteristics	
	Variables	Category
101	Age in years _____	Range 10-19 years(Tic here) A. 10-14() B. 15-19()
102	Sex	A. Male B. Female
103	Religion	A. Orthodox B. Muslim C. Protestant D. Catholic E. Other(Specify)
104	Address	A. Addis Abeba B. Out of Addis(Specify): _____
105	Parental Marital status	A. Married B. Divorced/Separated C. Widower D. Unknown
106	Educational status	A. Uneducated B. Primary C. Secondary D. Preparatory E. College and above
107	Parental Educational status	A. Uneducated B. Primary

		C. Secondary D. Preparatory E. College and above
108	Family death	A. Yes B. No
109	Family history of mental illness	A. Yes B. No
110	Living arrangement	A. With family B. Alone
111	Homelessness	A. Yes B. No
112	Number of total family members	_____

200	Part II Oslo social support scale(OSSS-3)	
	Questions	Response
201	Q1. How many people are so close to you that you can count on them if you have great personal problems?	None(1) 1-2(2) 3-5(3) 5+(4)
202	Q2- How much interest and concern do people show in what you do?	None(1) Little(2) Uncertain(3) Some(4) A lot(5)
203	Q3- How easy is it to get practical help from neighbors if you should need it?	Very difficult(1) Difficult(2) Possible(3) Easy(4) Very easy(5)

N.B.- The scale ranged from 3–14, and the scores 3–8, 9–11, and 12–14 stood for “poor”, “moderate” and “strong” social support, respectively.

300. Part-III PHQ-9-(A) Depression and ASQ modified questions

Instructions: How often have you been bothered by each of the following symptoms during the past **two weeks**? For each symptom put an “**X**” in the box beneath the answer that best describes how you have been feeling.

	(0) Not at all	(1) Several days	(2) More than half of the days	(3) Nearly every day
301. Feeling down, depressed, irritable, or hopeless?				
302. Little interest or pleasure in doing things?				
303. Trouble falling asleep, staying asleep, or sleeping too much?				
304. Poor appetite, weight loss, or overeating?				
305. Feeling tired, or having little energy?				
306. Feeling bad about yourself or feeling that you are a failure, or that you have let yourself or your family down?				
307. Trouble concentrating on things like school work, reading, or watching TV?				

308. Moving or speaking so slowly that other people could have noticed? Or the opposite-being so fidgety or restless that you were moving around a lot more than usual				
309. Thoughts that you would be better off dead, or of hurting yourself in some way?				

In the past year have you felt depressed or sad most of the days, even if you felt okay sometimes?

(1) YES

(2)No

If you are experiencing any of the problems on this form, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

(1)Not difficult at all (2) Somewhat difficult (3) Very difficult (4) Extremely difficult

Severity score _____

N.B.- A cut-off point of ten and above was used for depression

400	Part IV- Substance abuse	
	Questions	Possible Responses
401.	Q.1- Have you ever used recreational drugs in your lifetime?	A. Yes B. No
402.	Q.2- If Yes for question 1 please specify.	A. Khat Chewing B. Cigarette smoking C. Alcohol drinking D. Mariwana smoking E. Others(specify) _____
403.	Q.3 How frequently do you use these drugs	A. Once a month B. Once a week C. Daily base D. Multiple times per day E. Others(specify) _____

500	Part- V Suicidal Ideation and attempt questionnaire		
	Questions	Response	
		Yes	No
501.	Q.1- Have you ever thought about committing suicide		
502.	Q.2- If yes for Q.1 How many times	(If cooperative Specify)	
503.	Q.3- Have you ever thought about committing suicide in the past month		
504.	Q.4- If yes for Q3, how many times	(If cooperative Specify)	
505.	Q.5- Have you ever attempted suicide		
506.	Q.6. - Mechanism of attempt	A. Hanging B. Poisoning other than drugs C. Drugs D. Firearms E. Knives or other sharp objects F. Others:- Specify _____	
507.	Q.7-Have you ever attempted suicide in the past month		
508.	Q.8- Reson for the attempt(If cooperative)	A. Family conflict B. Economic burden C. Death of a family member D. Academic failure E. Medical Illness F. Romantic relationship failure G. Feel like there is no other way out	

		H. Others
509.	Q.9- Are you having thoughts of killing yourself right now?	A. Yes B. No
510.	Q.10- Which of the following statements most accurately describes your attempt? (If applicable)	A. I made a serious attempt to kill myself and it was only luck that I did not succeed
		B. I tried to kill myself but knew that the method was not fool-proof
		C. I attempted to cry for help. I did not intended to die
		D.Others(Specify)

11.2 DECLARATION

I hereby declare that; this thesis report is my original work and has not presented for a degree by another person in this or any other university and all source material used for this thesis have been acknowledged.

Name: _____

Signature_____

Date_____

Name of Advisor: _____

Signature_____

Date_____