ELSEVIER

Contents lists available at ScienceDirect

Preventive Medicine Reports

journal homepage: www.elsevier.com/locate/pmedr



Prevalence and associated determinants of suicidal ideation and attempt among people with severe mental disorders in Addis Ababa, Ethiopia a cross-sectional study

Genanew Kassie Getahun ^{a,*,1}, Zewdu Minwuyelet Gebremariam ^a, Kalkidan Haile ^b, Asmamaw Deguale Worku ^c

- ^a Kotebe Metropolitan University, Menelik II Medical and Health Science College, Addis Ababa, Ethiopia
- b Amhara Public Health Institute, Public Health Emergency Management Directorate, Resilience and Recovery Team, Bahirdar, Ethiopia
- ^c Public Health Emergency Management, Addis Ababa Health Bureau, Addis Ababa, Ethiopia

ARTICLE INFO

Keywords: Suicidal ideation Suicidal attempt Severe mental disorder Ethiopia

ABSTRACT

Suicidal ideation and attempts are much more common in people with severe mental disorders than in the general population. As a result, the goal of this study was to look at suicidal ideation and attempts in people with severe mental disorders in Addis Ababa, Ethiopia, in 2022.

Using a simple random sample technique, a facility-based cross-sectional study involving 423 patients with severe mental disorders was conducted. The factors associated with suicidal thoughts and attempts were identified using a bivariate and multivariate logistic regression analysis model. Significant factors were determined using a p-value of less than 0.05.

The prevalence of suicidal ideation and attempt was 26.4% (95% CI: 22.3-30.99%) and 18.6% (95% CI: 15.2-22.7%), respectively. Moreover, suicidal thoughts were linked with being single (AOR = 2.1.1, 95% CI: 1.01, 4.72), having poor social support (AOR = 3.1, 95% CI: 1.05, 9.422), and having comorbid depression (AOR = 2.72, 95% CI: 1.62, 4.54). Suicidal attempt was also associated with secondary education (AOR = 4.06, 95% CI: 1.50, 10.98), illness duration (AOR = 2.48, 95% CI: 1.15, 5.35), hopelessness (AOR = 3.415, 95% CI: 2.114, 15.516), and the absence of positive symptoms (AOR = 0.37, 95% CI: 0.209, 0.683).

A significant proportion of patients with severe mental disorders have contemplated or actually attempted suicide. Poor psychosocial support, a higher level of education, and comorbid depression were all linked to these issues. Therefore, controllable risk factors such as education, hopelessness, and psychosocial support should be prioritized and given particular emphasis.

1. Introduction

Suicide is an appalling act, an interesting clinical phenomenon, and a serious public health and wellbeing issue fueled by biological and psychological variables (Abdollahi and Abu, 2015). From initial thoughts to actual suicide attempts, it is a lengthy process with many different paths (Adams et al., 2017). Suicidal ideation, expectation, and attempts are frequently connected to self-harm and deadly self-destructive behaviors (Jones et al., 2009).

Suicidal ideation is a self-destructing thought, desire, intention, or method of suicide, whereas a suicide attempt is a self-harming act performed with the expectation of dying (Klonsky et al., 2016). Suicide is one of the top ten causes of death for individuals of all ages around the world, and in a few countries, it is among the top three causes of death for young people aged 15 to 34. (Naghavi, 2019). A serious cases of depression, schizophrenia, or bipolar disorder increases the risk of suicide by 3–10 times when compared to the general population, with men being more at risk than women (Richardson et al., 2023; Chesney et al., 2014). Despite these actualities, mental illnesses may be a poor indicator of self-destructive thoughts and endeavors since 95% to 97% of individuals don't commit suicide (Handley et al., 2018).

Severe mental disorders (SMDs) are commonly utilized to refer to

E-mail address: genanaw21kassaye@gmail.com (G.K. Getahun).

^{*} Corresponding author.

¹ **ORCID ID:** 0000-0002-0796-5433.

schizophrenia, bipolar disorder, and depression, all of which have higher rates of self-destructive thoughts and endeavors than the general population (Jones et al., 2009). However, it can be connected more broadly to any mental ailment that causes serious functional disability (Serafini et al., 2023). Suicide is recognized as a primary emergency in psychiatry (Sartorius et al., 1986). In fact, suicide is the leading cause of death in individuals with schizophrenia (Frank et al., 2002).

Despite the fact that suicide affects all countries, it is estimated that low- and middle-income countries are responsible for 77% of all cases and most 88% of adolescents who died by suicide were from low- and middle-income countries (World Health Organization, 2019); Unfortunately, the majority of studies have been carried out in high-income countries (HICs) (Sartorius et al., 1986). Due to social preferences and a lack of infrastructure, reporting and gathering suicidal statistics in developing countries is challenging (World Health Organization, 2019); moreover, suicide may be a hidden cause of death in conventional communities due to high levels of shame and related religious and social condemnation, making detailing and gathering insights on suicide difficult (Jones et al., 2009). Suicide accounted for 1.8% of all deaths worldwide in 2017, and it has the potential to rise to 2.4% by 2030 (Handley et al., 2018). In Ethiopia, the overall prevalence of suicidal attempts ranges from 13.9% to 28.6% (Salelew and Lamessa Dube, 2016; Duko and Ayano, 2018; Gebremariam et al., 2017). More than 90% of all suicides were attributed to mental illness, counting schizophrenia (19-46% of cases), bipolar disorder (28-62.4% of cases), and depression (18-48% of cases) (Joe et al., 2008).

Besides, anhedonia defined by reduced ability to enjoy pleasure, medical conditions such as epilepsy, bariatric surgery (obesity-related procedures), occupation, gender differences, monthly income, excessive alcohol consumption, unemployment, psychiatric illnesses such as personality and psychosomatic disorder, psychotic illness as well as repeated overdoses of benzodiazepines and paracetamol (Gillissie et al., 2023; Lim et al., 2018; Choo et al., 2014) were identified as risk factors for suicidal thoughts and attempts.

According to the World Health Organization (WHO) report, suicide accounts for 50% of all violent deaths in men and 71% in women (Sartorius et al., 1986). In addition, it has been demonstrated that individuals with extreme mental ailments are more likely to commit suicide (Frank et al., 2002, 2019). In the other hand, many developing countries including Ethiopia are battling poverty, low literacy, and rapid population growth. Noncommunicable diseases take precedence over communicable diseases and maternal and child health. In these circumstances, mental health is given very little consideration (Osafo et al., 2020). Moreover, there haven't been enough studies on self-destructive thoughts and attempts in people with severe mental disorders in lowand middle-income (LMIC) countries including Ethiopia. Subsequently, this study was conducted to assess the prevalence and associated factors of suicidal thoughts and attempts among people with severe mental disorders in Addis Ababa, Ethiopia, in 2022.

2. Methods

2.1. Study area and population

The research was carried out in two giant public hospitals in Addis Ababa, Ethiopia, which were the cities' only public hospitals that provided care and treatment to people suffering from severe mental disorders. It was carried out specifically at St. Amanuel Mental Health Specialized Hospital (AMSH) and St. Paul's Hospital Millennium Medical College (SPHMMC). AMSH offers services for all types of mental illness, and SPHMMC provides referral services for mental disorders to patients from all over the country. The research was conducted from April 1st to July 30th, 2022 using institutional-based cross-sectional study design, including patients with established DSM-V diagnoses of schizophrenia, bipolar disorder, and major depressive disorder who were clinically diagnosed and admitted to selected public hospitals in

Addis Ababa.

2.2. Sample size determination and sampling procedure

The sample size was calculated using a single population proportion formula using an assumption proportion of suicidal thoughts and attempts at 50% (to obtain a large sample size), a 95% confidence interval, and a 5% margin of error.

$$n = \frac{(Z \alpha/2)^2 p (1-p)}{d^2}$$

Finally, with a 10% non-response rate, the desired sample size was 423. Among the 13 public hospitals in Addis Ababa, only two of them were deliberately chosen due to the fact that these were the only public hospitals that served patients with severe mental health illnesses. Proportional allocation was done to determine the number of patients required from each hospital. Finally, using the patient registry as a sampling frame, a simple random sampling technique was used to identify study participants.

2.3. Study variables

Suicidal ideation and attempt were considered outcome variables, while sociodemographic factors (age, gender, marital status, etc.), clinical factors (onset of illness, duration of illness, etc.), and comorbid illnesses (like hopelessness) were considered predictor variables.

2.4. The data collection and analysis

The data collection questionnaire was developed using the Colombia Suicide Severity Rating Scale (CSSRS) with some adjustments (Lim et al., 2018). It was composed in English and interpreted into Amharic for ease of interviewing study participants. A chart review was also performed to gather some pertinent information. A pretest was conducted on 5% of the total sample size to test the consistency of the questionnaire.

Epi-data was used to enter data, which was then transferred to SPSS 25.0 for analysis. A binary logistic regression analysis model was used to find candidate variables for multivariable logistic regression analysis. A multivariable logistic regression analysis model included variables with a p-value less than 0.25 in a binary logistic regression analysis. The final model's results were reported using the adjusted odds ratio (AOR) and the 95% confidence interval. Finally, variables with p-values less than 0.05 were classified as significant.

2.5. Ethical considerations

Ethical approval was granted from the research and ethics board of Kotebe Metropolitan University, Menelik II Medical and Health Science College, with approval number 29/2022. An official permission letter was obtained from AMSH (Amanuel Mental Health Specialized Hospital) and SPHMMC (St. Paul's Hospital Millennium Medical College) higher officials. Written informed consent was obtained from each study participant before an interview.

2.6. Patient and public involvement

Throughout the proposal development, data collection, and analysis phases, psychiatry professionals provided advice for the researchers regarding ethical issues and tips on how to communicate findings to a broad audience in a way that the general public could understand and benefit.

3. Results

3.1. Socio-demographic and clinical characteristics of the study participants

The study received 423 responses, resulting a 100% response rate. The participants in the study ranged in age from 18 to 65 years old, with a mean age of 33.8 (+/- 10.753 SD). The majority of respondents (276, or 65.2%), were single, and over 211 (50%) held a high education diploma. The majority of respondents (169, 39.9%) were unemployed and earned less than 1500 Ethiopian Birr. 269 (63.5%) of the respondents lived with their family, whereas 69 (16.3%) of the study participants lived with their spouse (Table 1).

The vast majority 183 (43.2%) of those surveyed had recurrent episodes of schizophrenia followed by bipolar disorder 123 (29%) and major depressive symptoms 68 (16%). Positive symptoms of severe mental health disorders are experienced by the majority of respondents, with 176 (41.6%) experiencing hallucinations and 108 (25.5%) experiencing delusions, but only 173 (40.8%) experiencing negative symptoms. Around 177 (41.8%) of those who participated had comorbid conditions, and 14 (3.3%) were physically ill. Only 42 people (9.9%) had a history of suicide in their family. Furthermore, 130 (30%) of respondents reported using substances after diagnosis, and 172 (40.6%) reported using substances at any time (Table 2).

3.2. Prevalence and reasons for suicidal thoughts and attempts

The lifetime prevalence of self-destructive thoughts was 112 (26.4%, 95% CI: 22.3–30.9%), males make up 9.3%, while females make up

Table 1Socio-demographic characteristics of respondents in Addis Ababa, Ethiopia, 2022.

Variables	Frequency	Percent (%)
Age		
18–24	35	8.3
25–34	145	34
35–44	127	30.3
>=45	116	27.4
Sex		
Male	279	65.9
Female	144	34.1
Marital Status		
Single	276	65.4
Married	84	19.8
Separated/Divorced/Widowed	63	14.8
Educational Status		
No formal education	79	18.6
Primary education	104	21.9
Secondary Education	147	34.7
Above secondary education	93	24.3
Employment status		
Unemployed	169	39.9
Employed	254	60.1
Monthly income		
≤1500	299	70.6
>1500	124	29.4
Current living with		
Family	269	63.6
Alone	38	8.9
Spouse	69	16.4
Children	43	10.2
Others	4	0.9
Perceived social support		
Excellent	42	9.9
Very good	72	17.1
Good	125	29.5
Fair	110	26.1
Poor	74	17.4

^{*}Aunt, uncle, and friend.

Table 2 Clinical characteristics of respondents in Addis Ababa, Ethiopia, 2022.

25 15 83 31 52 40 90 47 12 44 44 56 64 45 52 2 296 47 48 49 40 40 41 41 41 41 41 41 41 41 41 41	29.6 27.1 43.3 30.9 35.9 33.2 21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2
115 83 31 52 40 00 47 12 44 44 66 34 25 2 2 2996	27.1 43.3 30.9 35.9 33.2 21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2
31 31 52 40 90 47 12 44 44 56 54 55 2 2 2996 77 246	43.3 30.9 35.9 33.2 21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
31 52 40 00 47 12 44 66 63 64 25 2 2 2996	30.9 35.9 33.2 21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
31 52 40 00 47 12 44 66 64 42 55 2 2 1996	35.9 33.2 21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
52 40 00 47 12 44 66 84 55 2 2996	35.9 33.2 21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
240 20 247 22 244 266 284 25 2 296 277 246 240 299	33.2 21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
00 47 42 44 56 84 85 2 2 296	21.3 34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
.47 12 .44 .66 .63 .42 .5 .2 .2 .2996 .77 .246	34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
.47 12 .44 .66 .63 .42 .5 .2 .2 .2996 .77 .246	34.8 9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
12 44 66 64 45 55 22 1996 77 74 446	9.9 34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
244 56 64 425 52 2996 277 246	34.0 12.9 8.1 5.9 2.9 70.2 41.8 58.2 96.7
566 644 55 52 22 296 577 246	12.9 8.1 5.9 2.9 70.2 41.8 58.2
34 25 2 2 296 -77 246	8.1 5.9 2.9 70.2 41.8 58.2
34 25 2 2 296 -77 246	8.1 5.9 2.9 70.2 41.8 58.2
25 2 2996 -77 246	5.9 2.9 70.2 41.8 58.2
.2 296 .77 246	2.9 70.2 41.8 58.2 96.7
.77 .246 .409	70.2 41.8 58.2 96.7
.77 246 109	41.8 58.2 96.7
109	58.2 96.7
109	58.2 96.7
109	96.7
109	96.7
4	3.3
.71	40.5
252	59.5
problems	
123	100.
354	83.8
59	16.2
43	33.7
280	66.3
12	10.1
381	89.9
37	8.7
	91.3
	21.0
72	40.6
	59.4
	07.1
30	30.7
	69.3
3 3 3	254 99 43 880 2

17.1%. In addition, eight people (1.8%) reported suicidal tendencies in the previous month. Suicidal attempts were 79 (18.6%, 95% CI: 15.1%—22.7%), where 11.5% of men and 7.8% of women attempting suicide in the previous month. Of the total study participants, 91 (22%) had a suicide plan, and the majority respondents who attempted suicide (59, or 74.7%) had attempted suicide at least once in their lives time. Of those who attempted suicide, 43 (54.4%) made serious suicide attempts. However, seven respondents (7.7%) stated that their attempt was a cry for help and they did not intend to die (Table 3).

The majority of male and female respondents (35.4% and 20.2%) respectively attempted suicide by hanging. Besides, many female respondents 12.6% used poisoning methods. The majority of respondents (43%) attempted suicide as a result of their current mental illnesses, followed by family conflict (23%), and hopelessness (21%).

3.3. Factors associated with suicidal ideation and attempt

Suicidal ideation was significantly associated with marital status, educational level, perceived social support, absence of positive symptoms, comorbid depression, hopelessness, family history of suicide attempts, and duration of illnesses in a bivariate logistic regression

Table 3
Prevalence suicidal thoughts and attempts in Addis Ababa, Ethiopia, 2022.

Variables	Frequency (n=423)	Percent (%)
Ever seriously thought ab	out committing suicide	
Yes	112	26.4
No	311	73.6
Duration of ever seriously	y thought	
<=1 month	8	1.9
2-12 months	38	36.6
13-24 months	14	10.1
>=25 Months	52	22.4
Among those with suicide	e ideation ever made a pla	an for committing suicide
Yes	91	22.2
No	319	77.8
Duration of ever made a	plan for committing suici	de
<=1 months	7	7.7
2-12 months	31	34.1
13-24 months	12	13.2
>=25 Months	41	45.0
Ever attempted suicide		
Yes	79	18.6
No	344	81.4
Duration of ever attempte	ed suicide	
<=1 months	6	7.5
2-12 months	28	35.5
13-24 months	8	10.1
>=25Months	37	46.9
Number of suicidal attem	pted	
Once	59	74.7
Twice	8	10.1
More than twice	12	15.2
Type of attempted suicide	e	
serious attempt	43	54.4
Try to kill them selves	29	36
Cry for help	7	7.7

analysis. In addition, multivariable logistic regression analysis revealed that single patients with severe mental health disorders were more than twice as likely as those who were widowed or divorced to have suicidal ideation (AOR = 2.1, 95% CI: 1.01, 4.72). Participants with a low social support were nearly three times more likely to have suicidal ideation than their counterparts (AOR = 3.11, 95% CI: 1.02, 9.42).

Those who reported positive symptoms had a 62% higher risk of suicidal ideation than those who did not report positive symptoms (AOR = 0.38, 95% CI: 0.21, 0.68). Study participants with comorbid depression had 2.72 times more odds than their peers to have suicidal ideation (AOR = 5.41, 95% CI: 2.76–10.60). Similarly, respondents who reported hopelessness were more than two times more likely to have suicidal ideation than those who did not (AOR = 2.11, 95% CI: 1.45–3.20). Participants in the study who had been sick for more than five years were nearly four times more likely than those who had been sick for less than a year to have suicidal ideation (AOR = 3.7, 95% CI: 1.81, 7.57). Respondents who reported a family history of suicidal ideation were 2.3 times more likely to have suicidal thoughts than those who did not (AOR = 2.34; 95% CI: 1.14, 4.79) Table 4.

According to the bivariate analysis, marital status, educational status, social support, positive symptoms, comorbid depression, hopelessness, family history of suicide, and illness duration all had a significant association with suicidal attempt at a p-value of less than 0.25 and were considered candidates for multivariable logistic regression analysis.

Clients who have completed secondary school have more than four times the odds of attempting suicide as those who have not completed secondary school (AOR = 4.06, 95% CI: 1.50, 10.98). Participants in the study with low social support were 3.8 times more likely to attempt suicide than those with high social support (AOR = 3.82, 95% CI: 1.06, 13.79). Those who reported positive symptoms had a 63% higher risk of suicidal ideation (AOR = 0.37, 95% CI: 0.209, 0.68). Furthermore, those with comorbid depression had nearly five times the odds of attempting suicide as those without (AOR = 4.62, 95% CI: 2.91, 7.32). Respondents who felt hopeless were 3.41 times more likely than their counterparts to

Table 4
Factors associated with suicidal ideation in Addis Ababa, Ethiopia, 2022.

Variables	Suicidal ideation		AOR (95%, CI)
	Yes N (%)	No N (%)	
Marital Status			
Single	87 (31.5)	189 (68.5)	2.1 (1.01, 4.72) *
Married	11 (13.1)	73 (86.9)	0.72 (0.26, 1.94)
Separated/divorced/	14 (22.2)	49 (77.8)	1
widowed			
Educational Status			
No formal education	17 (21.5)	62 (78.5)	1
Primary education	27 (29.7)	77 (70.3)	1.630 (0.683,3.894)
Secondary Education	51 (34.7)	96 (65.3)	1.686(0.114, 5.517)
Higher education	17 (18.3)	76 (81.7)	0.977 (0.379, 2.516)
Perceived social support			
Excellent	9 (21.4)	33 (78.6)	1
Very good	28 (33.8)	49 (66.2)	1.463 (0.523,4.097)
Good	23 (18.7)	110 (81.3)	0.549 (0.196,1.536)
Fair	20 (20.9)	90 (79.1)	0.780 (0.277,2.198)
Poor	32 (52.5)	29 (47.5)	3.108(1.025,9.422) *
No positive symptoms			
Yes	39 (19.1)	145 (80.9)	0.378(0.209,683)
No	73 (33.3)	166 (66.7)	1
Comorbid depression			
Yes	65 (52.8)	115 (47.2)	2.72(1.62, 4.54) **
No	47 (23.6)	196 (76.4)	
Hopelessness		Ç)	
Yes	73 (46.0)	131 (54.0)	2.11 (1.459,3.20) *
No	39 (24.0)	180 (76.0)	1
Duration of illness since dia	gnosed	,	
<=1year	24 (18.3)	120 (81.7)	1
1–5 years	40 (28.8)	99 (71.2)	3.456(1.683,7.10) **
>=5 years	48 (34.3)	92 (65.7)	3.705(1.814,566) **
Family history of suicide att	empt		
Yes	25 (60.9)	22 (39.1)	2.34(1.14,4.79) *
No	87 (32.7)	289 (67.3)	1

attempt suicide (AOR = 3.41, 95% CI: 2.11, 15.5). Finally, study participants with a duration of illness of 1–5 years had three times more odds of committing suicide attempts than those with a duration of illness less than or equal to twelve months (AOR = 2.55, 95% CI: 1.17, 5.55) Table 5.

4. Discussion

The purpose of this investigation was to determine the prevalence of suicidal thoughts and attempts as well as their possible associations with various variables. Suicidal ideation was found in 26.4% of study participants (95% CI: 22.3–30.99). This finding was consistent with the findings of a study conducted in Athens, Greece, where 22.4% of the population had suicidal thoughts (Choo et al., 2014). However, it was higher when compared to a community-based study finding in Addis Ababa, Ethiopia, which discovered 2.7% (Osafo et al., 2020) and a study conducted in Nairobi, Kenya, which found 14.3% (Agha et al., 2019). The higher magnitude of suicidal ideation in this study could be attributed to the fact that it was conducted in a psychiatric population with high-risk individuals as opposed to community-based studies.

In contrast, it was lower than a study finding from Gondar, Ethiopia,

Table 5Factors associated with suicidal attempts in Addis Ababa, Ethiopia, 2022.

Variables	Suicidal atte	empt	AOR (95%, CI)
	Yes N (%)	No N (%)	
Marital status			
Single	33 (11.9)	243 (88.1)	2.39 (0.95,6.03)
Married	13 (15.5)	71 (84.5)	0.91 (0.65, 4.94)
Separated/widowed	33 (53.4)	30 (46.6)	1
Educational Status			
No formal education	8 (10.1)	71 (89.9)	1
Primary education	17 (16.3)	87 (83.7)	2.26 (0.79,6.47)
Secondary Education	37 (25.1)	110 (74.9)	4.06(1.50,10.98) **
Higher education	17 (18.3)	76 (81.7)	1.58 (0.51,4.91)
Perceived social suppor	t		
Excellent	4 (11.9)	38 (88.1)	1
Very good	14 (24.3)	59 (75.7)	2.02 (0.56,6.89)
Good	18 (18.7)	104 (84.3)	0.94 (0.28.3.16)
Fair	18 (20.9)	99 (78.1)	0.90 0.26,3.15)
Poor	25 (52.5)	44 (60.7)	3.82(1.06,13.79)
Absence of positive sym	ptoms		, , ,
Yes	23 (19.1)	156 (80.9)	0.37(0.209,0.683) **
No	56 (33.3)	188 (66.7)	1
Comorbid depression			
Yes	53 (41.5)	122 (58.0)	4.625(2.918,7.323)
No	26 (13.0)	222 (86.6)	1
Hopelessness			
Yes	60 (35.4)	164 (63.7)	3.415(2.114, 15.516
No	19 (12.8)	180 (87.2)	1
Duration of illness since	diagnosed		
<1year	17 (35.4)	109 (81.7)	1
1–5 years	36 (28.8)	119 (80.5)	2.55(1.17,5.55) *
>=5years	26 (22.9)	116 (77.3)	2.48(1.15,5.35) *
Family history of suicid			
Yes	17 (50.0)	28 (47.9.)	4.664(2.447,8.889) *
No	62 (21.8)	316 (77.9)	1

which encountered 64% (Posner et al., 2011) and Nigeria, which observed 35.5% (Kontaxakis et al., 2004). The reason for this disparity could be in contrast to this study, which only assessed patients with severe mental disorders, the study participants were all patients who visited a psychiatric clinic, and the majority of these studies used lifetime prevalence.

Suicidal attempts were tried by 18.6% (95% CI: 15.11–22.7) at some point in their lives. This finding was consistent with the findings of the studies in Gondar, Ethiopia (19.2%), and Istanbul, Turkey (17.9%) (Kudinova et al., 2019; Ndetei et al., 2008). However, it was higher than the results of Ethiopian semi-urban communities (13.9%) and Nairobi, Kenya (1.9%) (Gebremariam et al., 2017; Mekonnen and Kebede, 2011). This disparity could be attributed to a socioeconomic difference as well as the sample size, as some of the characteristics of the population used in this study did not correspond to those of hospitalized patients.

Marital status was found to be a significant predictor of suicidal ideation in the current study, with single patients having more than twice the odds of having suicidal ideation than those who were separated, divorced, or widowed. This finding was consistent with the Iranian study's findings (Sweetland et al., 2019). One possibility is that people with a single marital status might receive less social support than their counterparts.

In line with our findings, South African studies discovered that schizophrenic patients with a higher level of education were more likely to have suicidal ideation and attempts (Ayalew et al., 2021). The possible reason for this may be that those patients with a higher education may have greater insight into or awareness of psychiatric conditions that could be associated with increased suicide risk, and this association might be mediated by depression and hopelessness.

Perceived social support was one of the predictor variables for suicidal ideation. Participants in the study with low social support were more likely to consider suicide than those with strong social support.

This finding supported the WHO report (Sartorius et al., 1986), and other published studies found that low social support was significantly associated with suicidal ideation and attempts (Canbaz and Terzi, 2018). However, apart from that, our findings indicated that positive symptoms were linked to suicidal thoughts and attempts. Those with no positive symptoms were 37% less likely to have suicidal ideation than those with positive symptoms. This finding supported previous research that found that the presence of positive symptoms increased the risk of suicidal ideation and attempt (Lim et al., 2018).

Furthermore, those who reported feeling hopeless or having comorbid depression were more likely to have suicidal thoughts than those who did not. This could be due to a person's sense of hopelessness distorting their thinking and making them unwilling to take advantage of any opportunities that would put them in a better position. This finding was consistent with the findings of a Taiwan and China study, which discovered that patients who felt hopeless or had comorbid depression were more likely to have suicidal ideation (Jenkins et al., 2015).

A family history of suicidal ideation or attempt was found to be significantly associated with self-destructive thoughts and endeavors. Suicide may be inherited, which could explain why this is the case. Suicidal behavior in both patients and their families may be influenced by environmental and non-genetic factors, such as shared exposure to family stress and shared lifestyles. This is in accordance with the WHO report (Abdollahi and Abu, 2015).

5. Limitations of the study

Rather than looking at the point or current prevalence, we looked at the lifetime prevalence of suicidal thoughts and attempts. It is only possible to assess stated ideation; individuals may not have actual suicidal thoughts. Furthermore, the study design was insufficiently robust to distinguish between cause-and-effect relationships.

6. Conclusion

According to the findings of this study, a significant number of people suffering from severe mental illnesses have suicidal thoughts and attempts. Furthermore, suicidal ideation and attempt were significantly associated with being single, having a higher education, having poor social support, having a family history of suicidal ideation and attempt, and feeling hopeless. As a result, we recommend that healthcare providers screen all SMD patients for suicidal ideation on a regular basis and attempt to provide the necessary clinical interventions. The Ethiopian Ministry of Health should create and distribute a screening tool to address this issue.

Consent for publication

Not applicable.

Funding

The study has no funding source.

Registration of research studies

Name of the registry: https://www.researchregistry.com Unique identifying number or registration ID: researchregistry8598.

CRediT authorship contribution statement

Genanew Kassie Getahun: Conceptualization, Data curation, Methodology, Supervision, Visualization, Writing – original draft, Writing – review & editing. **Kalkidan Haile:** Supervision, Formal analysis, Resources, Validation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Acknowledgment

We would like to acknowledge the study participants and data collectors for this study.

Provenance and peer review

Not commissioned, externally peer reviewed.

References

- Abdollahi, A., Abu, T.M., 2015. Hardiness, spirituality, and suicidal ideation among individuals with substance abuse: The moderating role of gender and marital status. J. Dual Diagn. 11 (1), 12–21.
- Adams, R.E., Urosevich, T.G., Hoffman, S.N., Kirchner, H.L., Hyacinthe, J.C., Figley, C.R., Boscarino, J.J., Boscarino, J.A., 2017. Social support, help-seeking, and mental health outcomes among veterans in non-VA facilities: results from the veterans' health study. Military Behav. Health 5 (4), 393–405.
- Agha, R., Abdall-Razak, A., Crossley, E., Dowlut, N., Iosifidis, C., Mathew, G., Beamishaj, Bashashati, M., Millham, F.H., Orgill, D.P., Noureldin, A., Nixon, I.J., Alsawadi, A., Bradley, P.J., Giordano, S., Laskin, D.M., Basu, S., Johnston, M., Muensterer, O.J., Mukherjee, I., Ngu, J.-Y., Valmasoni, M., Pagano, D., Vasudevan, B., Rosin, R.D., McCaul, J.A., Albrecht, J., Hoffman, J.R., Thorat, M.A., Massarut, S., Thoma, A., Kirshtein, B., Afifi, R.Y., Farooq, N., Challacombe, B., Pai, P.S., Perakath, B., Kadioglu, H., Aronson, J.K., Raveendran, K., Machado-Aranda, D., Klappenbach, R., Healy, D., Miguel, D., Leles, C.R., Ather, M.H., 2019. Guideline: Strengthening the Reporting of Cohort Studies in Surgery. Int. J. Surg. 72, 156–165.
- Ayalew, M., Defar, S., Reta, Y., Schnack, H., 2021. Suicide behavior and its predictors in patients with schizophrenia in Ethiopia. Schizophr. Res. Treatment. 2021, 1–10.
- Canbaz, S., Terzi, Ö., 2018. The prevalence of suicidal ideation in adolescents and associated risk factors: An example from Turkey. Adv. Ther. [Internet] 35 (6), 839–846. https://doi.org/10.1007/s12325-018-0720-2. Available from:
- Chesney, E., Goodwin, G.M., Fazel, S., 2014. Risks of all-cause and suicide mortality in mental disorders: a meta-review. World Psychiatry 13 (2), 153–160.
- Choo, C., Diederich, J., Song, I., Ho, R., 2014. Cluster analysis reveals risk factors for repeated suicide attempts in a multi-ethnic Asian population. Asian J. Psychiatr. 1 (8) 38-42
- Duko, B., Ayano, G., 2018. Suicidal ideation and attempts among people with severe mental disorder, Addis Ababa, Ethiopia, comparative cross-sectional study. Ann. Gen. Psychiatry [Internet] 17 (1), 3–7. https://doi.org/10.1186/s12991-018-0193-3.
- Frank, E., Cyranowski, J.M., Rucci, P., Shear, M.K., Fagiolini, A., Thase, M.E., Cassano, G. B., Grochocinski, V.J., Kostelnik, B., Kupfer, D.J., 2002. Clinical significance of lifetime panic spectrum symptoms in the treatment of patients with bipolar I disorder. Arch. Gen. Psychiatry. 59 (10), 905.
- Gebremariam, E.H., Reta, M.M., Nasir, Z., Amdie, F.Z., 2017. Prevalence and associated factors of suicidal ideation and attempt among people living with HIV/AIDS at

- Zewditu Memorial Hospital, Addis Ababa, Ethiopia: A cross-sectional study. Psychiatry J. 2017, 1–8.
- Gillissie, E.S., Le, G.H., Rhee, T.G., Cao, B., Rosenblat, J.D., Mansur, R.B., Ho, R.C., McIntyre, R.S., 2023. Evaluating Anhedonia as a risk factor in suicidality: A metaanalysis. J. Psychiatr. Res. 158, 209–215.
- Handley, T., Rich, J., Davies, K., Lewin, T., Kelly, B., 2018. The challenges of predicting suicidal thoughts and behaviours in a sample of rural Australians with depression. Int. J. Environ. Res. Public Health 15 (5), 928.
- Jenkins, R., Othieno, C., Omollo, R., Ongeri, L., Sifuna, P., Ongecha, M., Mboroki, J.K., Kiima, D., Ogutu, B., 2015. Tedium vitae, death wishes, suicidal ideation and attempts in Kenya-prevalence and risk factors Health behavior, health promotion and society. BMC Public Health 15 (1).
- Joe, S., Stein, D.J., Seedat, S., Herman, A., Williams, D.R., 2008. Prevalence and correlates of non-fatal suicidal behaviour among South Africans. Br. J. Psychiatry. 192 (4), 310–311.
- Jones, L., Asare, J.B., El Masri, M., Mohanraj, A., Sherief, H., Van Ommeren, M., 2009. Severe mental disorders in complex emergencies. Lancet 374 (9690), 654–661.
- Klonsky, E.D., May, A.M., Saffer, B.Y., 2016. Suicide, suicide attempts, and suicidal ideation. Annu. Rev. Clin. Psychol. 12 (1), 307–330.
- Kontaxakis, V., Havaki-Kontaxaki, B., Margariti, M., Stamouli, S., Kollias, C., Christodoulou, G., 2004. Suicidal Ideation in Inpatients with Acute Schizophrenia. Suicidal Ideation in Inpatients with Acute Schizophrenia. 49 (7), 476–479.
- Kudinova, A.Y., Deak, T., Deak, M.M., Gibb, B.E., 2019. Circulating levels of brain-derived neurotrophic factor and history of suicide attempts in women. Suicide Life-Threat. Behav. 49 (1), 54–63.
- Lim, R.B., Zhang, M.W., Ho, R.C., 2018. Prevalence of all-cause mortality and suicide among bariatric surgery cohorts: a meta-analysis. Int. J. Environ. Res. Public Health 15 (7), 1519.
- Mekonnen, D., Kebede, Y., 2011. The prevalence of suicidal ideation and attempts among individuals attending an adult psychiatry out-patient clinic in Gondar, Ethiopia. Afr. Health Sci. 11 (1), 103–107.
- Naghavi M. 2019. Global, regional, and national burden of suicide mortality 1990 to 2016: systematic analysis for the Global Burden of Disease Study 2016. BMJ. 364.
- Ndetei, D.M., Khasakhala, L., Maru, H., Pizzo, M., Mutiso, V., Ongecha-Owuor, F.A., Kokonya, D.A., 2008. Clinical epidemiology in patients admitted at Mathari Psychiatric Hospital, Nairobi, Kenya. Soc. Psychiatry Psychiatr. Epidemiol. 43 (9), 736–742
- Osafo, J., Asante, K.O., Akotia, C.S., 2020. Suicide prevention in the African region. Crisis 41 (Supplement 1), S53–S71.
- Posner, K., Brown, G.K., Stanley, B., Brent, D.A., Yershova, K.V., Oquendo, M.A., Currier, G.W., Melvin, G.A., Greenhill, L., Shen, S.a., Mann, J.J., 2011. The Columbia-Suicide Severity Rating Scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. Am. J. Psychiatry 168 (12), 1266–1277.
- Richardson, C., Robb, K.A., McManus, S., O'Connor, R.C., 2023. Psychosocial factors that distinguish between men and women who have suicidal thoughts and attempt suicide: findings from a national probability sample of adults. Psychol. Med. 53 (7), 3133–3141
- Salelew, E., Lamessa Dube, M.A., 2016. Suicidal behaviours among people with mental illness at Jimma University Teaching Hospital. Qual. Prim. Care 24 (6), 246–255.
- Sartorius, N., Sartorius, N., Jablensky, A., Jablensky, A., Korten, A., Korten, A., Korten, A., et al., 1986. Early manifestations and first-contact incidence of. Schizophr. Differ. Cult. Psychol. Med. 16, 909–928.
- Serafini, G., Costanza, A., Aguglia, A., Amerio, A., Trabucco, A., Escelsior, A., Sher, L., Amore, M., 2023. The role of inflammation in the pathophysiology of depression and suicidal behavior: implications for treatment. Med. Clin. North Am. 107 (1), 1–29.
- Sweetland, A.C., Norcini Pala, A., Mootz, J., Kao, J.-W., Carlson, C., Oquendo, M.A., Cheng, B., Belkin, G., Wainberg, M., 2019. Food insecurity, mental distress and suicidal ideation in rural Africa: Evidence from Nigeria, Uganda and Ghana. Int. J. Soc. Psychiatry 65 (1), 20–27.
- World Health Organization. Suicide Worldwide in 2019: Global Health Estimates.