

RESEARCH

Open Access



Suicidality and associated factors among people living with mental illness attending an outpatient clinic at a tertiary hospital in Uganda

Emmanuel Alol^{1,2*}, Alain Favina^{1,2}, Scholastic Ashaba¹ and Godfrey Zari Rukundo^{2,3}

Abstract

Background Suicidality is one of the leading causes of mortality worldwide. Mental disorders are major predictors of suicidality. Individuals with severe symptoms of mental disorders face marked distress, significant restrictions in functioning across several life domains, and a higher risk of suicidality. The risk of suicidality is even higher among people with mental illness following discharge from hospital due to challenges of adjusting to life with a mental illness in the community, taking psychotropic medications which are life long, and acceptance of the diagnosis. Information on suicidality and associated factors among people with mental disorders especially in Uganda is sparse. This study aimed to determine the prevalence of suicidality and factors associated among people with mental illness attending an outpatient clinic at a tertiary hospital in Uganda.

Methods A cross sectional quantitative study design was adapted for this study. We used consecutive sampling to enroll 400 participants as determined by the Kish and Leslie formula. Recent suicidality (both ideation and attempts) was evaluated using the Columbia-Suicide Severity Rating Scale (C-SSRS). All the factors significant at bivariate analysis were entered into a multivariable regression model to determine the factors that were statistically significantly associated with suicidality. A p-value of ≤ 0.05 was considered statistically significant.

Results The study found that 8.50% of participants reported suicidal ideation out of whom 3.25% attempted suicide. Females exhibited higher prevalence of ideation (10.26%) and attempts (3.59%) compared to males. Rural residents had higher rates of ideation, while urban residents had more suicide attempts. The factors that remained statistically significantly associated with suicidality included being female (AOR = 2.50, 95% CI 1.07–5.82; $p = 0.03$), being separated or widowed (AOR = 0.88, 95% CI 0.02–0.04; $p = 0.003$), having a family history of suicide (AOR = 0.35, 95% CI 0.15–0.79; $p = 0.01$) and being on two or more medications (AOR = 0.22, 95% CI 0.08–0.62; $p = 0.004$). Family social support (AOR = 0.87, 95% CI 0.78–0.97; $p = 0.02$) and Resilience (subscale of the internalized stigma of mental disorders) (AOR = 1.54, 95% CI 1.18–2.00; $p = 0.001$) also remained statistically significantly associated with suicidality.

*Correspondence:
Emmanuel Alol
alolemanuel@gmail.com

Full list of author information is available at the end of the article



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Conclusions The prevalence of suicidality is high among people with mental disorders accessing care as outpatients and it is associated with the female gender, being widowed or divorced, family history of suicide and resilience to stigma of mental illness. Routine screening and management of suicidality especially among females, those with positive family history of suicide and the widowed or divorced, taking into account stigma of mental disorders should be very crucial elements of the health care system targeting those accessing outpatient care.

Clinical trial number Not applicable for this study.

Keywords Suicidality, Associated factors, Mental disorders, Mental illness, Uganda

Introduction

Suicidality is one of the leading causes of mortality worldwide with nearly 1 million suicide deaths every year [1]. The highest suicide burden lies in low and middle-income countries, where studies on suicidality and mental disorders are sparse [2]. As a cause for greater concern, the prevalence of mental disorders in Sub-Saharan Africa (SSA), where Uganda lies is predicted to increase by 130% between 2010 and 2050 [3]. This notwithstanding, the prevalence of any mental disorder in Uganda currently has been estimated at 2.9% among children and 24.2% among adults while suicide is estimated at 4.6 per 100,000 people [4–6]. Suicidality is a complex phenomenon that exists on a spectrum, ranging from passive suicidal thoughts and active suicidal ideation to planning, suicide attempts, and completed suicide [7]. Each stage of this spectrum represents different levels of risk and requires tailored clinical interventions. For example, individuals experiencing suicidal ideation may primarily benefit from counseling and psychological support, whereas those who have attempted suicide often need more intensive medical and psychiatric care, including crisis intervention and safety planning [8].

Mental disorders are major predictors of suicidality with suicide risk being ten times higher in those with mental disorders compared to the general population [9]. Schizophrenia, mood disorders and substance use disorders pose the biggest risk [10–12]. Individuals with depression often experience intense sadness, loss of interest in activities they once enjoyed, and feelings of worthlessness or guilt. These symptoms lead to a distorted view of life, where the person feels that death is the only way to escape their pain [13]. People with bipolar disorder experience extreme mood swings and impulsivity which contribute to increased risk-taking behavior, including suicide attempts [14]. Individuals with schizophrenia on the other hand experience delusions (false beliefs) and hallucinations (Perception in absence of sensory stimulus). These experiences lead to feelings of isolation, fear and confusion, becoming overwhelmed with their symptoms and resorting to suicidal behavior [15]. Substance use disorders often co-occur with mental health conditions and can exacerbate the symptoms of the mental illness, impair judgment, increase impulsivity, and lower

inhibitions, making someone more likely to act on suicidal thoughts [16].

The risk of suicidality is even higher among people with mental illness following discharge from hospital due to challenges of adjusting to life with a mental illness in the community, taking psychotropic medications which are life long, acceptance of the diagnosis and life with a chronic stigmatized disease [17, 18]. Mental illness stigma in the community is often associated with unwillingness to open up and receive help hence majority of people with mental illness and suicidality not being assessed and managed appropriately in spite of making an attempt to visit health facilities [19, 20]. Other factors associated with a high risk of suicidality among people with mental illness include being divorced or separated, being unemployed, chronic disorders like HIV and poor social support [21, 22]. In their attempt to cope with mental illness related challenges people with mental illness engage in unhealthy behavior such as use of illicit substances [23], which may impair judgment, weaken impulse control, and further increase the risk of suicidality [24]. Patients with mental illness who cope through religion on the other hand often have a wide social support network and a lower risk of suicidality [25, 26].

The recent increase in economic hardships worldwide following the emergence of the COVID-19 pandemic has led to a general rise in suicidality, especially in low and middle-income countries (LMICs), Uganda inclusive [27, 28]. The National mental health sector in Uganda is also faced with challenges of inadequate supplies of medication and staffing [29]. In addition, in the early 2000s, research revealed that medications used in the management of suicidality, like the SSRIs might increase the risk of suicidal thoughts and behavior in children, adolescents, and young adults, particularly during the first few weeks of treatment [30]. These challenges pose a big hurdle in the fight against suicidality.

In spite of the above challenges though, information on suicidality and associated factors among people with mental disorders especially in Uganda is sparse [6]. This study aimed to bridge this gap by determining the prevalence of suicidality and factors associated among people with mental illness attending an outpatient clinic at a tertiary hospital in Uganda.

Methods

Study design and setting

A cross sectional quantitative study design was adapted for this study at Mbarara regional referral hospital (MRRH) in Mbarara city, southwestern Uganda [31]. The hospital has a bed capacity of 600 and serves Mbarara city that houses approximately 113,164 households and a total population of approximately 474,144 [32]. MRRH is the main public hospital in Mbarara, therefore also serves as a referral center for all districts in southwestern Uganda and the neighboring countries of Burundi, Democratic Republic of Congo, Tanzania and Rwanda [33]. Majority of the people who access mental health care in this hospital live in rural areas outside the city with documented challenges of water and food insecurity [34, 35]. The psychiatry department offers both inpatient and outpatient services where services offered include assessment, diagnosis and management. In addition to pharmacological management patients also receive psychological management. The mental health team at MRRH Psychiatry unit consists of psychiatrists, psychiatric clinical officers, senior house officers, psychiatric nurses, and psychologists.

Target and study population

The target population was people with mental disorders in southwestern Uganda. The study population was adults with mental disorders who were stable and were attending the outpatient clinic at MRRH during the study period (April and June 2023), and were able to give written informed consent. Diagnoses were made by qualified mental health professionals (psychiatrists and psychiatric clinical officers) based on the DSM-5 criteria as standard practice at the outpatient clinic. The outpatient mental health clinic serves a diverse group of patients with varying psychiatric diagnoses that commonly include mood disorders, schizophrenia spectrum disorders, organic related and substance use disorders. Less frequently encountered are anxiety and somatic symptom disorders.

Sampling and sample size determination

The sample size was obtained using the Kish & Leslie formula ($N = p(1-p)Z^2/d^2$), where N = sample size, Z = z value from standard normal curve corresponding to 95% confidence interval i.e. 1.96, P = expected frequency of suicidality 50% (because no recent study concerning suicidal behavior has been conducted among patients with mental illness), and d = margin of error = 5%. This resulted in a sample of 400 participants after adjusting for 10% non-response rate. We used consecutive sampling to enroll the participants until the predetermined sample size was reached.

Enrolment procedure

Research assistants enrolled participants who came as outpatients as long as they fulfilled the inclusion criteria. The potential participants were approached by the research assistants after their regular clinic review and medication refills by the attending clinicians. They were given information about the study including the benefits of participation and risks of participation if any. Those who agreed to participate in the study were asked to provide written informed consent before they were enrolled in the study. The study included all participants with diagnosed mental disorders aged 18 years and above, attending the outpatient clinic, who had been diagnosed with a mental disorder for at least six months. Potential participants who were unable to either give written informed consent or understand the contents of the consent document due to an intellectual disability or a cognitive disability were excluded from the study. Participants were given a number code to protect their confidentiality.

Study variables

Suicidality (ideations and or attempt) was assessed as the main outcome variable. The independent variables included demographic characteristics, diagnosis as made by the clinician in the treatment chart (schizophrenia, bipolar affective disorder, depression, substance use disorder, somatic symptom disorders and anxiety-related disorders), Drug abuse, social support, stigma of mental disorders, duration with mental disorders diagnosis, family history of mental disorders (First-degree relatives (parents, siblings, or children) with a history of mental disorders or suicidal behavior) and religiosity. We included substance abuse separate from the diagnosis of substance use disorder due to its dual role as both a primary diagnosis and comorbidity. This allowed us to capture problematic substance use among participants who may not have substance use as their primary diagnosis.

Socio demographics and other factors

Socio-demographic information included age, sex, marital status and places of residence, level of education, employment status, number of children, and family history of mental disorders. Other information collected included participant's chronic physical conditions, duration of mental disorders diagnosis, number of medications one was taking, and family history of suicidal behavior.

Study tools

Tools used in the current study included; The Columbia suicide severity rating scale (C-SSRS), Internalized stigma for mental illness (ISMI), Duke University Religion Index (DUREL) and The drug abuse screening tool (DAST). The C-SSRS, ISMI, DUREL, and DAST have

all been previously used in sub-Saharan African populations. While local validation in Uganda is limited, these tools have demonstrated good internal consistency and feasibility in similar contexts. Translation into Runyankole and Luganda was done through a forward-backward method by bilingual experts. Tools were pretested among a small sample ($n=10$) to assess comprehension, which led to minor wording adjustments.

Columbia-Suicide Severity Rating Scale (C-SSRS)

The Columbia-suicide severity rating scale (C-SSRS) was used to assess for suicidality. The C-SSRS was originally developed by researchers at Columbia University, the University of Pennsylvania and the University of Pittsburgh and has provision for assessing both recent and lifetime suicidality [36]. The C-SSRS has been widely validated in different subpopulations, and has been used in multiple trials [37] such as military veterans with concomitant posttraumatic stress disorder [38] and outpatients in a psychiatry clinic [39]. The C-SSRS has been translated into more than 30 languages and the various versions are available for use [40]. For the current study, those who endorsed none of the items of the C-SSRS were given a score of 0 and were classified as “no suicidality”. All those categories with a positive response “yes” were classified as having “suicidality” and this was further categorized into “ideation” and “attempts”. Those with both ideation and attempts were considered under the “attempts” category [41]. We assessed recent suicidality in our study participants since these are more closely tied to the individual's current circumstances.

Internalized stigma of mental disorders scale (ISMI)

The stigma of mental disorders was assessed using the internalized stigma of mental disorders scale (ISMI). The ISMI is a 29-item self-report survey that gauges an individual's experience with stigmatizing mental disorders throughout their lifetime [42, 43]. Each item is rated on a four-point Likert-type scale (0 = strongly disagree; 1 = disagree; 2 = agree; and 3 = strongly agree). Higher overall scores are a sign of more internalized stigma. There are five subscales that make up the internalized stigma of mental disorders scale, alienation (feelings of being a devaluated member of the community), stereotype endorsement (agreement with negative ideas about people with mental disorders), discrimination experience, social withdrawal, and stigma resistance. A sample of Veterans Affairs (VA) psychiatric outpatients showed strong internal consistency ($= 0.90$) and test-retest reliability ($r = 0.92$) in prior study [42]. The scale has been translated into a number of languages and has high internal consistency and validity [44].

Duke university religion index

Religiosity was assessed using the Duke University Religion Index (DUREL) which evaluates three main religious components that were determined at a consensus meeting hosted by the National Institute on Aging [45]. The three dimensions are organizational religious activity (ORA), non-organizational religious activity (NORA), and intrinsic religiosity (IR or subjective religiosity). The ORA domain is measured by one item and defined as the frequency with which one attends formal religious services. The NORA domain is measured by one item and defined in the amount of time spent in private religious activities such as prayer or meditation. The IR domain is measured by three items and conceptualized as the degree to which one integrates their religion into their lives. Responses to the items of the organizational and non-organizational subscales are rated on a 6-point frequency scale on which 1: never, 2: once a year or less, 3: a few times a year, 4: a few times a month, 5: once a week, and 6: several times a week. Responses on the items of the intrinsic subscale are rated on a 5-point frequency scale anchored by 1: definitely not true and 5: definitely true. The first question of the IR domain reads; “In my life.....” signifying that the tool assesses lifetime religiosity. The mean rating on the three check items was calculated to derive a total intrinsic score.

Drug abuse screening test

Drug use was assessed using the Drug Abuse Screening Test (DAST) which was created and tested by Dr. Harvey A. Skinner at the Addiction Research Foundation in Toronto, Canada [46]. It was created as a quick tool for clinical screening and therapy evaluation studies. The 28 self-report items draw on a variety of effects, which are added up to create a final DAST score to produce a quantitative assessment of issues associated to drug abuse. The tool assesses drug use including cannabis (marijuana, hashish), solvents (e.g., paint thinner), tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin) in the past 12 months. The DAST yields yes/no responses, each worth one point, for a total score ranging from 0 to 10. Participants receive 1 point for every “yes” answer with the exception of question #3, for which a “no” answer receives 1 point. An overall score of 0 designates “no drug abuse” while a score of one and above points to “problematic drug use”.

Data analysis

Data were entered and cleaned in Microsoft excel before being imported into Stata version 16 for analysis. The Gaussian assumption was used to assess for normality of variables like age based on the Shapiro-Wilks test and histograms. Descriptive statistics including percentages,

frequencies, means, and standard deviations were used to summarize the data. The proportion of people with suicidality was compared with the total number of participants and presented in form of frequency tables and percentages. To obtain the prevalence of suicidality and to evaluate the factors associated with suicidality (suicidal ideation and suicide attempts) we run logistic regression models. All significant factors at bivariate analysis were tested for collinearity based on variance inflation factor (VIF) < 2. The Kruskal Wallis test was used to assess for differences between variables that were not normally distributed like religiosity and social support. All the factors at bivariate analysis, irrespective of statistical significance were entered into a multivariable regression model to determine the factors that were statistically significantly associated with suicidality. A *p*-value of ≤ 0.05 was considered statistically significant.

Results

Socio-demographic characteristics and clinical characteristics of the participants

We recruited 400 participants with a median age of 37 (SD $\pm$ 13.11) and an age range of 29 to 47 years; More than half of the participants (51.3%) were male; Most of them (67%) hailed from a rural setting, and less than half of the participants (42.5%) were married. Bipolar disorder was the most common diagnosis among our participants, more than one third (38.25%) of the participants bearing this diagnosis.

Prevalence of suicidality

The study found that 8.50% of participants reported suicidal ideation out of whom 3.25% attempted suicide. Females exhibited higher prevalence of ideation (10.26%) and attempts (3.59%) compared to males. Rural residents had higher rates of ideation, while urban residents had more suicide attempts (Table 1).

Factors associated with suicidality

The factors that remained statistically significantly associated with suicidality included being female (AOR = 2.50, 95% CI 1.07–5.82; *p* = 0.03), being separated or widowed (AOR = 0.88, 95% CI 0.02–0.04; *p* = 0.003), having a family history of suicide (AOR = 0.35, 95% CI 0.15–0.79; *p* = 0.01) and being on two or more medications (AOR = 0.22, 95% CI 0.08–0.62; *p* = 0.004). Family social support (AOR = 0.87, 95% CI 0.78–0.97; *p* = 0.02) and Resilience (subscale of the internalized stigma of mental disorders) (AOR = 1.54, 95% CI 1.18–2.00; *p* = 0.001) also remained statistically significantly associated with suicidality (Table 2).

Discussion

In this study, we aimed to determine the prevalence of suicidality and associated factors among people with mental illness attending an outpatient clinic at a tertiary hospital in southwestern Uganda. We found a prevalence of suicidality of 8.5% and suicidal attempt of 3.3%. The factors that were statistically significantly associated with suicidality included female gender, having a family history of suicide, being widowed or divorced, internalized stigma of mental illness (resilience), family social support and taking two or more different types of medications.

The prevalence of suicidality of 8.5% among the study participants in our study is quite high and requires specific interventions in this vulnerable population. It is higher than the 6.1% that was documented by Abaaty et al. [2] at the same study site through a chart review [2]. While Abaaty et al. focused on inpatients though, the current study focused on outpatients. According to previous research the risk of suicidality is higher after patients are discharged from the hospital [47]. This is possibly due to challenges of adjusting to life with a mental illness in the community and the stigma associated with mental illness [48]. In addition, suicidality carries enormous stigma in our setting [49, 50], and is considered a bad omen for the family hence many people living with mental illness are hesitant to disclose [51]. Furthermore, in Uganda, it is not standard practice for healthcare professionals in healthcare facilities, to conduct screening and evaluate for suicidality [33]. However, the prevalence of suicidality in the current study was lower than the 28.6% (21.8% ideation and 16.1% attempt) reported by a study in Ethiopia in a similar study population [52]. This could possibly be explained by our inclusion of people with mental disorders who had been diagnosed for at least six months. The Ethiopian study however included those who were attending the clinic for the first time. Recent diagnosis of mental illness is associated with increased suicidality [11]. In this period, individuals often experience the emotional weight of the diagnosis, the functional and social consequences of illness before treatment can take full effect [53]. Similarly, the prevalence in this study is much lower than 80% reported in Finland among patients with bipolar affective disorder [54]. Patients with bipolar disorders tend to have higher rate of suicidality compared to patients with other mental disorders [55]. This elevated suicidality in this group could be attributed to the recurrent and severe nature of mood episodes, particularly depressive and mixed states, which combine intense hopelessness with increased energy and impulsivity, creating a dangerous context for acting on suicidal thoughts. The illness often has an early onset and chronic course, fostering feelings of inevitability and despair, and is frequently complicated by comorbid conditions such as substance use disorders

Table 1 Sociodemographic and clinical characteristics of the participants stratified by suicidality

Variables	N = 400 (%)	Ideation (%)	Attempts (%)	No suicidality (%)	χ^2 (P-value)
Age (median, IQR)	37 (29–47)	33 (26, 34)	34 (31, 43)	37 (29, 47)	
<i>Gender</i>					
Female	195 (48.75)	20 (58.82)	7 (53.85)	168 (47.59)	1.71 (0.426)
Male	205 (51.25)	14 (41.18)	6 (46.15)	185 (52.41)	
<i>Marital status</i>					
Separated/widowed	91 (22.75)	6 (17.65)	1 (7.69)	84 (23.80)	4.38 (0.357)
Married/cohabiting	170 (42.50)	12 (35.29)	7 (53.85)	151 (42.78)	
Never married	139 (34.75)	16 (47.06)	5 (38.46)	118 (33.43)	
<i>Residence</i>					
Rural	268 (67.00)	20 (58.82)	9 (69.23)	239 (67.71)	1.14 (0.566)
Urban	132 (33.00)	14 (41.18)	4 (30.77)	114 (32.29)	
<i>Level of education</i>					
Primary/none	143 (35.75)	13 (38.24)	7 (53.85)	123 (34.84)	5.83 (0.212)
Secondary	159 (39.75)	9 (26.47)	3 (23.08)	147 (41.64)	
Tertiary	98 (24.50)	12 (35.29)	3 (23.08)	83 (23.51)	
<i>Number of children</i>					
None	121 (30.25)	14 (41.18)	3 (23.08)	104 (29.46)	4.75 (0.313)
One to three	133 (33.25)	13 (38.24)	4 (30.77)	116 (32.86)	
More than 3	146 (36.50)	7 (20.59)	6 (46.15)	133 (37.68)	
<i>Duration since mental disorders diagnosis</i>					
Less than a year	128 (32.00)	10 (29.41)	5 (38.46)	113 (32.01)	1.14 (0.980)
1–5 years	107 (26.75)	11 (32.35)	3 (23.08)	93 (26.35)	
6–10 years	52 (13.00)	4 (11.76)	1 (7.69)	47 (13.31)	
> 10 years	113 (28.25)	9 (26.47)	4 (30.77)	100 (28.33)	
<i>Diagnosis</i>					
Bipolar Affective disorder	153 (38.25)	13 (38.24)	5 (38.46)	135 (38.24)	5.90 (0.823)
Depression	61 (15.25)	6 (17.65)	2 (15.38)	53 (15.01)	
Schizophrenia	56 (14.00)	5 (14.71)	0 (0.00)	51 (14.45)	
Organic mental disorders	31 (7.75)	2 (5.88)	1 (7.69)	28 (7.93)	
Substance use disorder	81 (20.25)	7 (20.59)	3 (23.08)	71 (20.11)	
Others (Anxiety, somatic symptom disorders)	18 (4.50)	1 (2.94)	2 (15.38)	15 (4.25)	
<i>Number of medications</i>					
One	38 (9.50)	7 (20.59)	3 (23.08)	28 (7.93)	8.66 (0.013)
Two or more	362 (90.50)	27(79.41)	10 (76.92)	325 (92.07)	
<i>Family history of suicide</i>					
Yes	109 (27.25)	14 (41.18)	5 (38.46)	90 (25.50)	4.670 (0.095)
No	291 (72.75)	20 (58.82)	8 (61.54)	263 (74.50)	
<i>Chronic physical disorders</i>					
Yes	95 (23.75)	6 (17.65)	5 (38.46)	84 (23.80)	2.25 (0.324)
No	305 (76.25)	28 (82.35)	8 (61.54)	269 (76.20)	
<i>Substance abuse</i>					
No	45 (11.25)	3 (8.82)	1 (7.69)	41 (11.61)	0.41(0.814)
Yes	355 (88.75)	31 (91.18)	12 (92.31)	312 (88.39)	
<i>Religiosity (Median)</i>		Median (IQR)			
Organizational religious activity	5 (5.85)	4 (3, 5)	4 (4, 5)	5 (4, 5)	
Non-organizational religious activity	4 (0.95)	4 (3, 5)	3 (1, 5)	4 (2, 5)	
Intrinsic religiosity	12 (10.43)	9.5 (8,13)	11 (9,12)	12 (9,13)	
<i>Social support (Median, IQR)</i>		Median (IQR)			
Significant other	24 (1.86)	22 (17, 24)	23 (19, 24)	24 (20, 24)	
Family support	24 (8.36)	21 (13, 24)	23 (23, 24)	24 (20, 24)	
Friend support	13 (5.98)	15 (12, 19)	15 (12, 20)	18 (14, 20)	
<i>Stigma of mental disorders</i>					
Alienation	14.95 (2.92)	15.54 (3.53)	17.06 (3.2)	14.73 (2.79)	

Table 1 (continued)

Variables	N = 400 (%)	Ideation (%)	Attempts (%)	No suicidality (%)	X ² (P-value)
Stereotype endorsement	15.72 (2.35)	16.69 (3.38)	16.18 (2.6)	15.64 (2.27)	
Discrimination	11.91 (2.26)	12.62(3.12)	12.62(2.5)	11.82(2.19)	
Social withdraw	13.76 (2.61)	14.38(3.48)	15.18(3.2)	13.59(2.46)	
Resilience	11.79 (1.73)	13.31(2.95)	12.71(1.7)	11.65 (1.62)	
Recent suicidality	34 (8.50)	34 (8.50)	13 (3.25)	353 (88.25)	

“Others” diagnostic category includes less common disorders such as anxiety and somatic symptom disorders. The diagnostic groups were based on frequencies and clinical relevance at the outpatient clinic

and anxiety, which further amplify suicidality. Additionally, the psychosocial consequences of bipolar disorder, including relationship disruption, financial instability, and occupational loss, contribute to heightened vulnerability [56–58].

Factors associated with suicidality among people with mental disorders

Globally, gender differences on suicidal death and suicidal behaviors have been consistent whereby the suicide rate is higher among men compared to women although women experience a higher prevalence of suicide-related behaviors especially suicide attempt compared to men [59]. In the current study, there was no statistically significant difference in suicidality between male and female participants at bivariate analysis; however, in the multivariate model, after adjusting for confounders, female gender was significantly associated with suicidality. This suggests that in people with mental illness, the influence of gender may be masked by overlapping risk factors in unadjusted analyses, but becomes evident when these are accounted for. Similar findings have been reported in Ugandan mental health settings [60–62] and globally [59, 63, 64]. This heightened vulnerability may reflect the higher prevalence of internalizing disorders such as depression among women, combined with socio-cultural stressors including gender-based violence, caregiving burdens, and economic dependence, which can exacerbate psychological distress [65]. The emergence of statistical significance only after adjustment highlights the importance of multivariate analyses in identifying gender-related risk factors for suicidality in psychiatric populations. This study found a positive association between being widowed/divorced and suicidality. In one study done in Kenya, participants who reported their partner status was “divorced” had four-times the odds of reporting suicide ideation than other partnership states [66]. In fact, widowhood was reported as a risk factor for serious mental disorders that in turn predispose to suicidality [67]. The emotional stress from the end of a marriage, whether through death or divorce, can be overwhelming and lead to feelings of hopelessness and despair [68]. Family social support was found to be negatively associated with suicidality. Strong family bonds,

open communication, and a supportive environment provide individuals with a sense of belonging, love, and understanding, which are crucial for mental well-being [69]. Support from family members may come in form of assisting the patients with daily responsibilities, offering financial assistance if needed, helping the patients to access mental health as well as support the patient emotionally [70].

Pharmacological treatment of mental disorders has been shown to have an anti-suicidal effect [71]. Over 75% of our study participants were on two or more medications and this was protective against suicidality among the participants. This finding may indicate that effective and early management of the symptoms of mental disorders through medication reduces the risk of suicidality [71, 72]. Consistent with previous findings, our study found a negative family history of suicide being protective against suicidality [73–75]. Familial suicide behavior may be mediated by the transmission of endophenotypes, such as impulsivity [73]. Environmental conditions may also result in familial transmission [76]. In addition, positive family history of suicide is associated with broader psychosocial outcomes in youth, such as interpersonal difficulties, low self-esteem, and poor school adjustment further increasing the risk of suicidality [73].

The resilience subscale of internalized stigma was found to have a positive relationship with suicidality. Highly resilient individuals with well controlled symptoms of mental disorders may be adept at hiding their emotional struggles [77]. They might internalize their distress, making it challenging for others to identify their need for support [78]. These individuals may feel a strong sense of responsibility to handle their problems independently. If they perceive seeking help as a burden to others or a sign of weakness, they may be less likely to reach out when experiencing suicidal thoughts [79]. In addition, these people may fear the stigma associated with mental health issues or feel ashamed of their struggles. This could prevent them from seeking help or discussing their feelings openly, leading to isolation and an increased risk of suicidality [80].

Interestingly, the current study did not find an association between mental illness diagnosis and suicidal behavior. While mental health conditions like depression,

Table 2 Factors associated with suicidality at bivariate and multivariate analysis

Variable	Bivariate analysis		Multivariable analysis	
	OR (95% CI)	p-value	AOR (95% CI)	p-value
Age	0.99 (0.96–1.01)	0.26	1.02 (0.98–1.07)	0.36
Gender				
Male	ref		ref	0.03
Female	1.49 (0.80–2.75)	0.21	2.50 (1.07–5.82)	
Marital status				
Never married	ref		ref	
Separated/widowed	0.47 (0.19–1.15)	0.098	0.88 (0.02–0.42)	0.003
Married	0.71 (0.36–1.38)	0.31	0.32 (0.08–1.20)	0.10
Residence				
Urban	ref		ref	0.65
Rural	0.77 (0.41–1.44)	0.41	0.82 (0.36–1.91)	
Level of education				
Tertiary	ref		ref	
Primary	0.90 (0.44–1.86)	0.78	1.40 (0.56–3.49)	0.47
Secondary	0.45 (0.20–1.01)	0.05	0.51 (0.17–1.50)	0.22
Number of children				
None	ref		ref	
3 or less	0.90 (0.44–1.85)	0.77	1.47 (0.41–5.28)	0.56
More than 3	0.60 (0.28–1.29)	0.19	1.08 (0.22–5.33)	0.92
Duration with disorders				
6–10 years	ref		ref	
Less than a year	1.25 (0.43–3.63)	0.68	1.54 (0.38–6.18)	0.54
1–5 years	1.42 (0.48–4.17)	0.53	1.58 (0.39–6.33)	0.52
> 10 years	1.22 (0.41–3.63)	0.72	1.84 (0.46–7.35)	0.39
Medications				
One	ref		ref	
Two or more	0.32 (0.14–0.71)	0.005	0.22 (0.08–0.62)	0.004
Family history mental disorders				
Yes	ref		ref	
No	1.77 (0.95–3.31)	0.07	1.96 (0.89–4.36)	0.10
Family history suicide				
Yes	ref		ref	
No	0.50 (0.27–0.95)	0.03	0.35 (0.15–0.79)	0.01
Chronic disorders				
Yes	ref			
No	1.02 (0.50–2.10)	0.95	1.05 (0.35–3.14)	0.94
Diagnosis				
Others (anxiety, somatoform)	ref		ref	
Schizophrenia	0.49 (0.10–2.29)	0.37	0.61 (0.09–4.20)	0.61
Bipolar disorder	0.67 (0.18–2.53)	0.55	0.61 (0.10–3.60)	0.59
Major depression	0.75 (0.18–3.20)	0.70	0.90 (0.14–5.96)	0.91
Organic related mental disorders	0.54 (0.10–2.99)	0.48	1.12 (0.11–11.48)	0.92
Substance induced	0.70 (0.17–2.87)	0.63	0.73 (0.12–4.36)	0.73
Religiosity				
Organizational religiosity	0.77 (0.64–0.94)	0.01	0.75 (0.54–1.03)	0.07
Non-organizational religiosity	0.98 (0.82–1.17)	0.80	1.17 (0.88–1.54)	0.28
Intrinsic religiosity	0.80 (0.71–0.91)	< 0.001	0.95 (0.80–1.13)	0.59
Internalized stigma sub scales				
Alienation	1.25 (1.12–1.39)	< 0.001	1.18 (0.99–1.42)	0.07
Stereotype endorsement	1.12 (0.99–1.27)	0.06	0.96 (0.77–1.19)	0.70
Discrimination	1.17 (1.02–1.33)	0.02	0.94 (0.74–1.19)	0.62
Social withdraw	1.22 (1.08–1.36)	0.001	1.07 (0.89–1.29)	0.47

Table 2 (continued)

Variable	Bivariate analysis		Multivariable analysis	
	OR (95% CI)	p-value	AOR (95% CI)	p-value
Resilience	1.57 (1.28–1.91)	< 0.001	1.54 (1.18–2.00)	0.001
Substance abuse				
No	ref			
Yes	1.41 (0.48–4.14)	0.52	1.03 (0.26–4.11)	0.97
Social support sub scales				
Significant other	0.93 (0.88–0.99)	0.02	1.07 (0.95–1.19)	0.28
Family support	0.92 (0.87–0.97)	0.004	0.87 (0.78–0.97)	0.02
Friend support	0.89 (0.82–0.96)	0.003	0.93 (0.84–1.03)	0.16

schizophrenia, and bipolar disorder are associated with over 90% of the deaths by suicide, they do not guarantee that an individual will engage in suicidal behavior [81–83]. Suicidality is a dilemmatic-intentional-behavioral-contextual phenomenon that exists on a spectrum, ranging from passive suicidal thoughts and active suicidal ideation to planning, suicide attempts, and completed suicide in which many factors are interwoven: cultural, social, existential, psychological, clinical, and biological [84]. This study therefore implores us to think about suicidal behaviour beyond the biomedical approach and the diagnostic factor.

Limitations

In the present study, we depended on self-reports of our participants; hence our results might have been affected by recall, social desirability and survival bias. There was also variability in the size of diagnostic clusters, which may have influenced the precision and comparability of results across diagnostic categories. In addition, some of our study tools had not been specifically validated for use in Uganda by the time of the study although they have previously been used in similar settings.

Conclusions

The prevalence of suicidality is high among people with mental disorders accessing care as outpatients and it is associated with the female gender, being widowed or divorced, family history of suicide and resilience to stigma of mental illness. A routine screening and management of suicidality especially among females, those with positive family history of suicide, and the widowed or divorced, taking into account stigma of mental disorders should be very crucial elements of the health care system for those accessing outpatient care.

Acknowledgements

The authors would like to express their heartfelt gratitude to the study participants and assistants whose sacrifice and dedication played a crucial role in shaping this work.

Author contributions

E.A wrote the first draft of the concept and manuscript. G.Z.R, S.A, E.A and A.F made substantial contributions to conception and design, acquisition of

data, or analysis and interpretation of data; took part in revising it critically for important intellectual content; agreed to submit to the current journal; G.Z.R gave final approval of the version to be published. All authors participated in reviewing, revising, and providing feedback before approving the final version for publication.

Funding

The present study did not get any external financial supports.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethical approval

Ethical approval to conduct this study was obtained from the Research Ethics Committee of Mbarara University of Science and Technology (MUST-2022-700) after approval from the Faculty Research Committee of the Faculty of Medicine of Mbarara University of Science and Technology. Permission was also sought from the medical director Mbarara Regional Referral Hospital and the department of Psychiatry to conduct the study. All participants provided written informed consent before they were enrolled in the study. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

Consent for publication

Consent for publication is not applicable in this manuscript since there are no images or identifiable data.

Competing interests

The authors declare no competing interests.

Author details

¹Department of Psychiatry, Faculty of Medicine, Mbarara University of Science and Technology, Mbarara, Uganda

²African Centre for Suicide Prevention and Research, Mbarara, Uganda

³Department of Psychiatry and Behavioral Neurosciences, McMaster University, Hamilton, Canada

Received: 20 September 2024 / Accepted: 29 December 2025

Published online: 09 January 2026

References

1. World Health Organization. Suicide in the world: global health estimates. World Health Organization; 2019.
2. Abaayo J, et al. Suicidal behavior among inpatients with severe mental conditions in a public mental health hospital in Uganda. *BMC Psychiatry*. 2023;23(1):346.
3. Opio JN, Munn Z, Aromataris E. Prevalence of mental disorders in Uganda: A systematic review and meta-analysis. *Psychiatr Q*. 2022;93(1):199–226.
4. Kaggwa MM, Harms S, Mamun MA. Mental health care in Uganda. *Lancet Psychiatry*. 2022;9(10):766–7.

5. World Health Organization. Suicide rate estimates, crude estimates by country. 2018.
6. Mugisha J, et al. Prevalence of suicidal ideation and attempt: associations with psychiatric disorders and HIV/AIDS in post-conflict Northern Uganda. *Afr Health Sci*. 2016;16(4):1027–35.
7. Klonsky ED, May AM, Saffer BY. Suicide, suicide attempts, and suicidal ideation. *Ann Rev Clin Psychol*. 2016;12(1):307–30.
8. Weber AN, et al. Psychiatric emergencies: assessing and managing suicidal ideation. *Med Clin N Am*. 2017;101(3):553.
9. Chen R, et al. Suicidal ideation and attempted suicide amongst Chinese transgender persons: National population study. *J Affect Disord*. 2019;245:1126–34.
10. Mustanski B, Liu RT. A longitudinal study of predictors of suicide attempts among lesbian, gay, bisexual, and transgender youth. *Arch Sex Behav*. 2013;42(3):437–48.
11. Bolton JM, Gunnell D, Turecki G. Suicide risk assessment and intervention in people with mental illness. *BMJ*. 2015:351.
12. Gili M, et al. Mental disorders as risk factors for suicidal behavior in young people: A meta-analysis and systematic review of longitudinal studies. *J Affect Disord*. 2019;245:152–62.
13. Williams M, et al. The mindful way through depression: freeing yourself from chronic unhappiness. Guilford; 2024.
14. Paribello P, et al. Impulsivity, aggressivity and mood disorders: a narrative review. *J Psychopathol*. 2024;30(1):62–72.
15. Berry N, et al. How individuals with psychosis develop and maintain resilience to suicidal experiences through psychological therapy: a qualitative study. *BMC Psychiatry*. 2024;24(1):1–18.
16. Leza L et al. Substance use disorder and lifetime suicidal behaviour: A scoping review. *Psychiatry Res*. 2024; p. 115830.
17. Ho T-P. The suicide risk of discharged psychiatric patients. *J Clin Psychiatry*. 2003;64(6):702–7.
18. Bojanić L, et al. Early post-discharge suicide in mental health patients: findings from a National clinical survey. *Front Psychiatry*. 2020;11:502.
19. Stene-Larsen K, Reneflot A. Contact with primary and mental health care prior to suicide: a systematic review of the literature from 2000 to 2017. *Scand J Public Health*. 2019;47(1):9–17.
20. Masuda A, Anderson PL, Edmonds J. Help-seeking attitudes, mental health stigma, and self-concealment among African American college students. *J Black Stud*. 2012;43(7):773–86.
21. Kinyanda E, et al. Adolescent suicidality as seen in rural Northeastern Uganda: prevalence and risk factors. *Crisis: J Crisis Intervention Suicide Prev*. 2011;32(1):43.
22. Kaggwa MM, et al. Gambling-related suicide in East African community countries: evidence from press media reports. *BMC Public Health*. 2022;22(1):1–13.
23. Rizk MM, et al. Suicide risk and addiction: the impact of alcohol and opioid use disorders. *Curr Addict Rep*. 2021;8(2):194–207.
24. Martinotti G, et al. Suicidal behavior and club drugs in young adults. *Brain Sci*. 2021;11(4):490.
25. Burshtein S, et al. Religiosity as a protective factor against suicidal behaviour. *Acta Psychiatrica Scandinavica*. 2016;133(6):481–8.
26. Grim BJ, Grim ME. Belief, behavior, and belonging: how faith is indispensable in preventing and recovering from substance abuse. *J Relig Health*. 2019;58(5):1713–50.
27. Zalsman G, et al. Suicide in the time of COVID-19: review and recommendations. *Archives Suicide Res*. 2020;24(4):477–82.
28. Wasserman D, et al. Adaptation of evidence-based suicide prevention strategies during and after the COVID-19 pandemic. *World Psychiatry*. 2020;19(3):294–306.
29. Ganafa S, et al. Barriers to treatment seeking for depression among elderly service users at Butabika National Referral and Teaching hospital, Kampala-Uganda. *Aging & Mental Health*. 2025; pp. 1–11.
30. Fagioli A, Cuomo A, McIntyre RS. SSRIs. In: Pocket guide to practical psychopharmacology: SSRIs and SNRIs in clinical practice. Springer; 2025. p. 7–75.
31. Mapcarta. *Mbarara*. 2023.
32. Uganda Bureau of Statistics. The national population and housing census 2014–Main report. 2016.
33. Wakida EK, et al. Barriers and facilitators to the integration of mental health services into primary healthcare: a qualitative study among Ugandan primary care providers using the COM-B framework. *BMC Health Serv Res*. 2018;18(1):1–12.
34. Mushavi RC, et al. When you have no water, it means you have no peace: a mixed-methods, whole-population study of water insecurity and depression in rural Uganda. Volume 245. *Social science & medicine*; 2020. p. 112561.
35. Tsai AC, et al. Population-based study of intra-household gender differences in water insecurity: reliability and validity of a survey instrument for use in rural Uganda. *J Water Health*. 2016;14(2):280–92.
36. Posner K, et al. The Columbia–Suicide severity rating scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. *Am J Psychiatry*. 2011;168(12):1266–77.
37. Glennon J, et al. Paediatric European Risperidone studies (PERS): context, rationale, objectives, strategy, and challenges. *Eur Child Adolesc Psychiatry*. 2014;23(12):1149–60.
38. Legarreta M, et al. DSM–5 posttraumatic stress disorder symptoms associated with suicide behaviors in veterans. *Psychol Trauma: Theory Res Pract Policy*. 2015;7(3):277.
39. Viguera AC, et al. Comparison of electronic screening for suicidal risk with the patient health questionnaire item 9 and the Columbia suicide severity rating scale in an outpatient psychiatric clinic. *Psychosomatics*. 2015;56(5):460–9.
40. Fernandez N, Grataloup G, Posner K. QL2 Translation of the Columbia Suicide Severity Rating Scale (C-SSRS) for use in 33 countries. *Value Health*. 2008;6(11):A340–1.
41. Katz I, et al. Use of the Columbia-Suicide severity rating scale (C-SSRS) in a large sample of veterans receiving mental health services in the veterans health administration. Volume 50. *Suicide and Life-Threatening Behavior*; 2020. pp. 111–21. 1.
42. Ritsher JB, Otilingam PG, Grajales M. Internalized stigma of mental illness: psychometric properties of a new measure. *Psychiatry Res*. 2003;121(1):31–49.
43. West ML, et al. Prevalence of internalized stigma among persons with severe mental illness. *Stigma Res Action*. 2011;1(1):3.
44. Li L, et al. Stigma, social support, and depression among people living with HIV in Thailand. *AIDS Care*. 2009;21(8):1007–13.
45. Koenig HG, Büssing A. The Duke university religion index (DUREL): a five-item measure for use in epidemiological studies. *Religions*. 2010;1(1):78–85.
46. Skinner HA. The drug abuse screening test. *Addict Behav*. 1982;7(4):363–71.
47. Luoma JB, Martin CE, Pearson JL. Contact with mental health and primary care providers before suicide: a review of the evidence. *Am J Psychiatry*. 2002;159(6):909–16.
48. Favina A, et al. Affiliate stigma and associated factors among informal caregivers of people with mental illness in Southwestern Uganda: A multi-center cross-sectional study. *PLOS Mental Health*. 2025;2(4):e0000132.
49. Hjelmeland H, Kinyanda E, Knizek BL. Mental health workers' views on the criminalization of suicidal behaviour in Uganda. *Med Sci Law*. 2012;52(3):148–151.
50. Knizek BL, et al. Between Hippocrates and god: Ugandan mental health professional's views on suicide. *Mental Health Relig Cult*. 2013;16(8):767–80.
51. Mugisha J, et al. Distancing: A traditional mechanism of dealing with suicide among the Baganda, Uganda. *Transcult Psychiatry*. 2011;48(5):624–42.
52. Salelew E, Dube L, Aber M. Suicidal behaviours among people with mental illness at jimma university teaching hospital psychiatry clinic, South West Ethiopia. 2021.
53. Owomugisha E, Atibuni DZ, Olema DK. Understanding the Determinants, Historical Context and Legal Framework of Mental Health in Uganda.
54. Valtonen H, et al. Suicidal ideation and attempts in bipolar I and II disorders. *J Clin Psychiatry*. 2005;66(11):1456–62.
55. Sher L, Oquendo MA, Mann JJ. Risk of suicide in mood disorders. *Clin Neurosci Res*. 2001;1(5):337–44.
56. Rubega A, et al. Substance use disorder among patients with primary mental illnesses in Southwestern Uganda. *J Dual Diagnosis*. 2025;21(1):13–23.
57. Muwanguzi M, Kaggwa MM. Suicidality among inpatients who absconded from a tertiary mental health facility in Uganda: a retrospective study. *BMC Psychiatry*. 2025;25(1):628.
58. Favina A, Abaayto J, Kaggwa MM. Dual harm among patients attending a mental health unit in Uganda: a hospital based retrospective study. *BMC Psychiatry*. 2024;24(1):154.
59. Rasheduzzaman M, et al. Suicidal behaviors among Bangladeshi university students: prevalence and risk factors. *PLoS ONE*. 2022;17(1):e0262006.
60. Boduszek D, et al. Prevalence and correlates of non-suicidal self-injury, suicidal ideation, and suicide attempt among children and adolescents: findings from Uganda and Jamaica. *J Affect Disord*. 2021;283:172–8.
61. Kaggwa MM et al. Suicidal behaviors and associated factors among medical students in Africa: A systematic review and meta-analysis. *J Affect Disorders Rep*. 2022; p. 100456.

62. Rukundo GZ, et al. Depression, suicidality, substance-use and associated factors among people living with HIV the COVID-19 pandemic in Uganda. *PLoS ONE*. 2023;18(5):e0285310.
63. Nomura S, et al. Trends in suicide in Japan by gender during the COVID-19 pandemic, up to September 2020. *Psychiatry Res*. 2021;295:113622.
64. Mamun MA. Suicide and suicidal behaviors in the context of COVID-19 pandemic in bangladesh: a systematic review. *Psychol Res Behav Manage*, 2021: pp. 695–704.
65. Schechter M, et al. The psychoanalytic study of suicide, part I: an integration of contemporary theory and research. *J Am Psychoanal Assoc*. 2022;70(1):103–37.
66. Goodman ML, et al. Intimate partnerships, suicidal ideation and suicide-related hospitalization among young Kenyan men. *Commun Ment Health J*. 2020;56:1225–38.
67. Nassor KR. Assessing the social life of widows and divorced women in Pemba island: A case of Pemba Eastern zone in Ole, Chambani, Maziwang'ombe, Uwandani and Kangagani Shehias. The Open University of Tanzania; 2021.
68. Egleson A. Divorce as a growth process: marital separation and separation-individuation in adulthood. 2024.
69. Rama CR, et al. Familismo: how eight categories of needs are Met in Hispanic American families within the context of familism. *Adv Social Sci Res J*. 2020;7(7):348–70.
70. Bressan V, Visintini C, Palese A. What do family caregivers of people with dementia need? A mixed-method systematic review. *Health Soc Care Commun*. 2020;28(6):1942–60.
71. Wasserman D, et al. Suicide prevention in psychiatric patients. *Asia-Pacific Psychiatry*. 2021;13(3):e12450.
72. Madundo K, et al. Prevalence, severity, and associated factors of depression in newly diagnosed people living with HIV in Kilimanjaro, tanzania: a cross-sectional study. *BMC Psychiatry*. 2023;23(1):83.
73. Jones JD, et al. Association between family history of suicide attempt and neurocognitive functioning in community youth. *J Child Psychol Psychiatry*. 2021;62(1):58–65.
74. Park CHK, et al. Suicide risk factors across suicidal ideators, single suicide attempters, and multiple suicide attempters. *J Psychiatr Res*. 2020;131:1–8.
75. Seo C, et al. Risk factors for suicidal ideation and suicide attempt among medical students: A meta-analysis. *PLoS ONE*. 2021;16(12):e0261785.
76. Melhem NM, et al. Brain 5-HT1A receptor PET binding, cortisol responses to stress, and the Familial transmission of suicidal behavior. *Int J Neuropsychopharmacol*. 2022;25(1):36–45.
77. Ho GW, et al. Childhood adversity, resilience, and mental health: a sequential mixed-methods study of Chinese young adults. *J Interpers Violence*. 2021;36(19–20):NP10345–70.
78. Flett GL, Hewitt PL. The perfectionism pandemic Meets COVID-19: Understanding the stress, distress, and problems in living for perfectionists during the global health crisis. *J Concur Disorders*. 2020;2(1):80.
79. Mok K, et al. Factors associated with help-seeking for emotional or mental health problems in community members at risk of suicide. *Adv Mental Health*. 2021;19(3):236–46.
80. Ryan-DeDominicis T. A case study using shame resilience theory: walking each other home. *Clin Soc Work J*. 2021;49(3):405–15.
81. Xu YE, et al. Suicidal behavior across a broad range of psychiatric disorders. *Mol Psychiatry*. 2023;28(7):2764–810.
82. Tsegay A, Damte A, Kiros A. Determinants of suicidal ideation among patients with mental disorders visiting psychiatry outpatient unit in Mekelle town, psychiatric clinics, Tigray, Northern ethiopia: a case–control study. *Ann Gen Psychiatry*. 2020;19(1):20.
83. Gonzalez VM. Recognition of mental illness and suicidality among individuals with serious mental illness. *J Nerv Ment Dis*. 2008;196(10):727–34.
84. De Beurs D, et al. A network perspective on suicidal behavior: Understanding suicidality as a complex system. *Suicide Life-Threatening Behav*. 2021;51(1):115–26.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.