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Suicidal ideation and behaviour among persons seeking HIV testing in peri-urban areas of Cape Town, South Africa: a lost opportunity for suicide prevention

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Abstract

Suicidal ideation and behaviour (SIB) are among the psychiatric sequela of HIV/AIDS. Few studies have however examined the prevalence and correlates of SIB among persons seeking HIV testing. We set out to document the prevalence and correlates of SIB among people seeking HIV testing in peri-urban areas of Cape Town, South Africa. A cross-sectional research design was used to recruit a sample (n=500) of individuals seeking HIV testing. Self-report measures were used to assess two-week prevalence of SIB as well as lifetime prevalence of suicide attempt. A Structured Clinical Interview was used to assess common mental disorders (CMDs). Regression analysis was used to determine if CMD and socio-demographic variables predicted suicidal ideation. The mean age of the sample was 36 years, 51.6% were female and 46.6% were unemployed. The two-week prevalence of suicidal ideation was 24.27% while the two-week prevalence of suicide attempt and suicide plans was 2.8%. Suicidal ideation was not associated with age, gender, employment status, family income or household food insecurity. CMDs were significantly associated with suicidal ideation; individuals with depressive disorders were approximately 5.5 times more likely to report suicidal ideation, while those with generalised anxiety disorder, trauma related disorders and alcohol use disorder were approximately 7, 4.7 and 2.8 times more likely to report suicidal ideation respectively. Results suggest that persons seeking HIV testing may be a well-delineated group of persons at risk of suicide in this region of SA. Contact with the health care system during HIV testing provides an opportunity for targeted suicide prevention interventions in what appears to be a high risk group.

Early in the HIV epidemic researchers noted that suicidal ideation and behaviour (SIB) were among the psychiatric sequela of HIV/AIDS (Glass, 1988; Hull, Sewell, Wilson, & McFeeley, 1988; Kizer, Green, Perkins, Doebbert, & Hughes, 1988; Marzuk et al., 1988). Studies in high income western countries consistently documented association between HIV and suicide risk (Alfonso et al., 1994; O'Dowd, Biderman, & McKegney, 1993; Pueschel & Heineman, 1995). Much of the literature reports the prevalence and correlates of SIB among people already infected and has failed to take account of how suicide risk fluctuates over time; the implicit assumption is that receipt of an HIV+ diagnosis is a psychological trauma

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that precipitates SIB. It is within this context that we documented the prevalence and correlates of SIB among persons seeking HIV testing in in peri-urban areas of the Western Cape Province of South Africa (SA). We were also interested in the extent to which socio-demographic characteristics and psychiatric disorders were associated with SIB in this population.

Suicidal behaviour among persons living with HIV

Evidence from high income countries suggests that risk of suicide among persons living with HIV/AIDS (PLWHA) has fallen as treatment outcomes have improved (Basavaraj, Navya & Rashmi, 2010; Keiser et al., 2010; Lönnqvist, 2015). There are however still reports of high rates of SIB among PLWHA. Shirey (2013) reports rates of suicide among PLWHA in Switzerland are three times that of the general population, and, in the USA, one in five HIV+ patients report suicidal ideation (SI) in the previous week. A national registry study in Denmark of 9,900 men who died by suicide and 189,037 controls, found suicide risk was elevated among HIV+ individuals (Jia, Mehlum & Qin, 2012). Similar prevalence rates for SIB are reported from the African continent, which has some of the highest rates of HIV infection in the world.

A study of HIV+ patients attending a HIV clinic in Uganda reported prevalence rates of 13% for current SI (Petrushkin, Boardman & Ovuga, 2005). Twelve-month prevalence rates of attempted suicide among HIV+ adolescents in Uganda are 17.1% (Musisi & Kinyanda, 2009). A SA study reported rates of 16.8% for suicidality among PLWHA (Olley, Zeier, Seedat & Stein, 2005). Researchers from the United Republic of Tanzania reported that the rate of HIV has doubled amongst those who died by suicide compared to the national prevalence for sexually active adults (Ndosi, Mbonde & Lyamuya, 2004). A study of 295 HIV+ individuals attending a West African HIV clinic reported SI prevalence rates of 13.6%.

There are good public health reasons for investigating the prevalence and correlates of SIB among PLWHA; SIB predicts future fatal and non-fatal suicidal behaviour, and is associated with poor quality of life, poor antiretroviral therapy adherence and non-disclosure of HIV status to significant others (Sherr et al., 2008). Ogundipe, Olagunju and Adeyemi (2015) have noted that the paucity of information on the relationship between SIB and HIV impedes evidence-guided interventions. There may be an additional public health prerogative to explore the relationship between SIB and HIV in low and middle income countries, like SA, where rates of HIV infection are high (Zuma et al., 2016) and suicide is considered to be a serious public health problem (authors, 2013).

Correlates of suicidal ideation and behaviour

Evidence suggests that SIB is rare in the absence of mental disorders (Rihmer, 2007). Over 90% of adult suicides are associated with psychiatric disorders (Conwell, Duberstein, Cox & Herman, 1996), notably depressive disorders (Wulsin, Vaillant & Wells, 1999), psychotic illness (Hawton, Sutton, Haw, Sinclair & Harris, 2005), and posttraumatic stress disorder (Krysinska & Lester, 2010).

Evidence indicates that there are positive associations between non-fatal suicidal behaviour and mental illness (Fliege, Lee, Grimm & Klapp, 2009), most notably depressive disorders and borderline personality disorder (APA, 2013). SI is more than four times more likely among individuals with mental disorders; particularly anxiety disorders (OR=3.4), mood disorders (OR=4.7), impulse control disorders (OR=3.3), and substance use disorders (OR=2.8, 95%) (Nock et al., 2008).

Kinyanda, Hoskins, Nakku, Nawaz and Patel (2012) note that studies in high income countries report that SIB among PLWHA is associated with the following risk factors: socio-demographic factors (female gender, younger age, Black ethnicity); psychiatric conditions (substance abuse, major depressive disorder, antisocial personality disorder, previous attempted suicide); familial factors (family history of a psychiatric disorder and family history of attempted suicide); psychosocial factors (heterosexual orientation, multiple HIV related losses, lack of social support, loss of employment or insurance cover, exhaustion of financial resources, physical and sexual abuse); and clinical/medical features (such as painful and disfiguring physical deterioration, suffering from lipodystrophy-related symptoms, physical and psychological symptoms, and receipt of an AIDS diagnosis). A study of HIV+ individuals in rural USA found that SI was associated with depressive symptoms, less coping self-efficacy worry about transmitting HIV, and anxiety about AIDS-related stigma (Heckman et al., 2002). A national registry case control study in Denmark of men who died of suicide (N=9,900) found that suicide risk was associated with comorbid psychiatric illness, recent HIV+ diagnosis, and more intensive and frequent hospital care (Jia, Mehlum & Qin, 2012). A study in Seoul (N=457) found that independent risk factors for SI among HIV+ adults were: young and middle age, living with someone, history of AIDS-defining opportunistic disease, history of treatment for depression, lower social support, and lower psychological status (Kang et al., 2015). Kang et al. (2015) found that suicide attempts among PLWHA were independently associated with being a beneficiary of National Medical Aid, economic barriers to treatment, history of treatment for depression, and lower psychological status.

Kinyanda et al. (2012) note the relative scarcity of studies from Africa documenting correlates of SIB among PLWHA. Table 1 provides a summary of the results of studies on correlates of SIB among PLWHA in African countries.

The paucity of research on SIB among persons seeking HIV testing has resulted in a lack of information about both the prevalence and correlates of SIB in this population. Our study thus represents an important first step in exploring socio-economic and psychiatric correlates of SIB among persons seeking HIV testing. Many of the studies that investigate psychiatric correlates of SIB among PLWHA assess symptoms of psychopathology using self-report symptom checklists. They thus report associations between SIB and symptoms of psychopathology rather than associations with specific psychiatric conditions. We were thus interested in investigating how SIB might be associated with psychiatric caseness among persons seeking HIV testing, rather than simply investigating symptoms of psychopathology.

Methods

Participants

We recruited a convenience sample of 500 individuals seeking HIV testing at three HIV testing sites in peri-urban areas surrounding Cape Town, SA. These sites were selected because of their proximity to residential areas in the greater Cape Town area and because of their accessibility to members of the public. Test-seekers were invited to participate in the study once they had registered at the reception desk of the testing site. Those who agreed to participate in the study were screened according to inclusion criteria. Eligibility criteria included not being floridly psychotic and being able to understand the interview questions in English. Only 40 potential participants had to be excluded because they were not conversant in English.

Ethics

The study was approved by the Stellenbosch University Health Ethics Committee. All participants gave signed informed consent to participate. Participants found to have clinically significant distress or a mental disorder were referred to a local mental health centre. Participants received a R50 (equivalent to approximately \$3.40) grocery voucher.

Measuring instruments

The following self-report data were collected by post-graduate psychology students who had been trained and supervised by registered psychologists:

Socio-demographic information—Participants were asked their age, a description of their race, gender, marital status, level of education, employment status, and annual family income.

Food insecurity—The Household Food Insecurity Scale was used to assess the level of food insecurity during the past 30 days (Coates, Swindale & Bilinsky, 2007).

Socio-economic status—The socio-economic status was assessed using the Socio-demographic Information Questionnaire (Svavarsdottir & Orlygsdottir, 2006).

Common mental disorder—The following modules of the Structured Clinical Interview Schedule (SCID) (First, 1995) adapted for DSM 5 (APA, 2013) were administered: depressive disorders, anxiety disorders, trauma and stress related disorders, and alcohol use disorder. We focused on these disorders because they are the most common forms of mental illness in SA (Joe, Stein, Seedat, Herman, & Williams, 2008).

Suicidal ideation—Information on the two-week prevalence of suicidal ideation was obtained from item nine on the Beck Depression Inventory which asks individuals if they currently have no thoughts of killing themselves (absence of suicidal behaviour), thoughts of killing themselves without any intention to follow through (passive suicidal ideation), a desire to be dead (suicidal desire), or if they would kill themselves given the opportunity (suicidal intention) (Beck, Steer, Garbin, 1996). The BDI has demonstrated excellent

reliability and validity in a variety of studies internationally and in SA (see for example, Foa, Riggs, Dancu, & Rothbaum, 1993; Martin & Kagee, 2010).

Suicidal behaviour—Lifetime and two-week prevalence of suicide attempts and plans were assessed using the major depressive disorder modules of the SCID (First, 1995).

Data collection

Data were captured on a Lenovo tablet via a web-based platform to facilitate data storage and manipulation. Data were collected prior to participants undergoing HIV testing.

Data analysis

Data were entered into Statistical Package for the Social Sciences (SPSS v. 19) (Norusis, 1990) and analysed using descriptive and multivariate statistics. Logistic regression analysis was used to determine whether suicidal ideation was associated with any of the socio-demographic variables, SES or food insecurity. Odds ratios were calculated to investigate the association between common mental disorders (CMDs) and SI. Hierarchical regression analysis was used to determine the relationship between SI and past suicide attempt, depressive disorders (i.e. major depressive disorder and persistent depressive disorder, generalised anxiety disorder (GAD), trauma and stress related disorders (i.e., acute stress disorder and posttraumatic stress disorder), and alcohol use disorder (AUD).

Results

Sample characteristics

A total of 500 participants took part in the study of which 51.6% were females. The mean age of the sample was 36 years. The demographic features and prevalence of CMDS are illustrated in Table 2. Most participants identified as Coloured¹ (72.6%) and reported that they were Afrikaans speaking (69.0%). Only 2% of participants tested HIV+. Depressive disorders were the most common form of psychopathology (22.41%) followed by AUD (20.33%).

Prevalence of suicidal ideation and behaviour

Twenty-four percent of the sample reported SI in the previous two weeks (; i.e., having suicidal thoughts (18.05%); having a desire to kill themselves (2.07%), and stating that they would kill themselves given the opportunity (4.15%). No significant gender differences were observed with respect to SI ($\chi^2=0.362$, $p=.547$).

A total of 5.20% individuals reported a life-time prevalence of suicide attempt while 2.8% reported a two-week prevalence of suicide attempt and suicide plans. No significant gender differences were observed with respect to life-time prevalence of suicide attempt ($\chi^2=0.408$, $p=.523$) or two-week prevalence of suicide plans and attempt ($\chi^2=2.268$, $p=.132$).

¹In Southern Africa, the term Coloured is an official ethnic label for people of mixed ethnic origin who possess ancestry from Europe, Asia, and various Khoisan and Bantu ethnic groups.

Socio-demographic predictors

Logistic regression analysis was performed to determine the association between two-week prevalence of SI and demographic variables. The results of this analysis are presented in Tables 4 and 5. No significant association was found between SI and demographic characteristics. Similarly, logistic regression analysis indicated that there was no statistically significant relationship between food insecurity and SI.

Mental disorder

Table 6 shows the number of persons reporting SI for each group of CMDs. Odds ratios were calculated to determine the level of association between each group of disorders and two-week prevalence of SI. Having a CMD was significantly associated with two-week prevalence of SI; individuals with depressive disorders were approximately 5.5 times more likely to report SI, while those with GAD, trauma related disorders and AUD were approximately 7, 4.7 and 2.8 times more likely to report SI respectively.

Hierarchical logistic regression analysis was performed to determine the association between SI and past suicide attempt, depressive disorders, GAD, trauma and related disorders and AUD. Table 7 displays the predictor variables as they were entered into this model, together with their standardised regression coefficients and significance levels. Table 8 shows the summary statistics for the regression analysis. The first model consisting only of past suicide attempt was significant and explained 2.3% of the variance in SI. When depressive disorders were added in the second model there was a significant increase in explained variance with depressive disorders accounting for an additional 8.3% of the variance. When GAD was added to the model there was also a significant increase in explained variance, as was the case when trauma and related disorders, and AUD, were added. GAD accounted for an additional 2.1% of the variance, while trauma and related disorders, and AUD respectively accounted for an additional 1.0% and 1.6% of the variance. In this final model, past suicide attempt and CMDs accounted for 14.6% of the variance in SI.

Discussion

The two-week prevalence of SI among HIV test seekers in our sample was 24.27%. The lack of comparable data on the characteristics of persons seeking HIV testing makes it difficult to draw meaningful comparisons. However, the 24.27% prevalence rate for SI in our sample is almost three times higher than the 9.1% life-time prevalence of SI among a nationally representative sample of the general population of SA (Joe, Stein, Seedat, Herman, & Williams, 2008). Similarly, the life-time prevalence of suicide attempt among persons seeking HIV testing was 5.2%, compared to the 2.9% reported by Joe et al. (2008) for SA's general population. This data suggest that HIV test seekers in this region may constitute a clearly delineated group of people at higher risk of suicide than the general population. These individuals have come into contact with the health care system, by virtue of seeking an HIV test, which may provide an opportunity for targeted suicide prevention interventions.

The prevalence rates for SI in our sample were also higher than the prevalence rates of 16.8 % for suicidality found among HIV+ patients in SA (Olley et al., 2005). This raises

questions about the extent to which SIB may predate receipt of an HIV+ diagnosis and the assumption that being diagnosed as HIV+ is psychologically distressing and precipitates suicidality. Longitudinal studies which trace the progression of SIB over time are needed to further illuminate the nature of the relationship between HIV and SIB.

In our sample, SI was not associated with age, gender, unemployment, family income or food insecurity. This is inconsistent with much of the literature on SI in community samples and among PLWHA. Our findings may be in part a result of the relative homogeneity of our sample in terms of socio-economic status. Future studies which draw from a broader cross-section of individuals may help to identify the socio-economic and contextual factors that contribute to SIB in this population.

In our sample, SI was significantly associated with past suicide attempt and depressive disorders, GAD, trauma and stress related disorders, and AUD. This finding is consistent with previous studies which found strong associations between psychiatric symptoms and SI among PLWHA. In our sample, however, CMDs and past suicide attempt only accounted for 14.6% of the variance in SI, which raises questions about what other factors might account for the elevated rates of SI. This is an area in need of further research, with particular focus on non-psychiatric contributors to SIB. Given the shortage of mental health care professionals in SA and the significant mental health treatment gap (Jack et al., 2014), it would be important to identify suicide prevention interventions that move beyond focusing only on the mental health determinants of suicidality in this population.

Our data draw attention to the high rates of SIB among persons seeking HIV testing in in the Western Cape province of SA. Further research is needed to establish how generalizable these results are to other HIV testing sites in SA. Rates of HIV infection are lower in the Western Cape than in other parts of the country (Simbayi et al. 2014); it would thus be important to replicate this study in regions where the prevalence of HIV (and therefore the likelihood of testing HIV positive) is higher.

Limitations

This is a cross sectional study which employs convenient sampling. This calls into question the extent to which our findings can be generalised for all HIV test seekers. Nonetheless this work represents an important first step in arguing that persons seeking HIV testing are a well delineated group who come into contact with the health care system and may have particular characteristics and psychological needs.

Our study focused on the association between SI and a diagnosis for a CMD. We did not consider the issue of symptom count and did not include any assessment of personality function, psychiatric comorbidity or use of substance use disorders other than AUD. It may be useful for future studies in this area to explore these issues, particularly given that SIB have been associated with psychiatric co-morbidity, personality disorders, severity of psychiatric symptoms and the use of substances other than alcohol (Hawton & Van Heeringen, 2000). Future studies might also focus on cluster B personality disorders in this population and their interaction with risk taking, impulsivity, increased risk of HIV and SIB.

Conclusion

High rates of SIB among persons seeking HIV testing has implications for suicide prevention. Rates of fatal and non-fatal suicidal behaviour in SA are high and suicide is considered a serious public health problem. Our data suggest that persons seeking HIV testing in peri-urban areas of Cape Town might constitute a well delineated population who is at particular risk for suicide. Contact with the health care system while seeking HIV testing provides an opportunity for targeted suicide prevention interventions. Hitherto this opportunity for intervention has been missed, in part because HIV testing has been uncoupled from the provision of other medical and psychosocial support services in SA. In an effort to provide greater access to HIV testing in SA, a large number of non-medical HIV testing sites have been established. In the context of our data, it would appear that there is a need for the integration of mental health services, especially screening for mental disorders and referral of those persons who are in need of services, as part of a national suicide prevention strategy.

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Table 1

Summary of studies conducted in Africa investigating correlates of Sib among PLWHA

Study setting	Correlates of SIB	references
HIV+ South Africans	Female gender, psychiatric disorders, partner relational problems, poor social support, fear of disclosure and stigma, socio-economic pressures, and problems with cognitive flexibility, concentration and memory	Schlebusch and Vawda (2010)
PLWHA attending HIV clinics in semi-urban Uganda	Female gender, negative life events, a previous psychiatric history, and major depressive disorder	Kinyanda et al. (2012)
PLWHA attending HIV clinics in Uganda	State anger, trait anger, depression, hopelessness, anxiety, low social support, inability to provide for others, and stigma	Rukundo, Mishara, & Kinyanda (2016)
PLWHA in West Africa	Unmarried, poor medication adherence, and poorer quality of life, unemployment, emotional distress, religion, HIV status non-disclosure and previous suicidal attempt.	Ogundipe et al. (2015).

Table 2

Demographic and clinical characteristics of the sample

	Number of respondents (n=500)	% of total sample
Gender		
Male	242	48.4
Female	258	51.6
Age (years)		
18 – 19	27	5.6
20 – 29	147	30.2
30 – 39	136	28.0
40 – 49	99	20.4
50 – 71	77	15.8
Race		
Black	131	26.2
Coloured	363	72.6
White	4	0.8
Other	2	0.4
Marital status		
Single	265	53.6
Widowed	13	2.6
Separated	28	5.6
Divorced	35	7.0
Married/living together	159	31.8
First language		
Afrikaans	345	69.0
English	30	6.0
Xhosa	98	19.6
Other	27	5.4
Educational level		
No formal education	23	4.6
Completed primary school	24	4.8
Attended secondary school	289	57.8
Completed secondary school	125	25.0
Attended tertiary institution	22	4.4
Graduated from tertiary institution	17	3.4
Current work situation		
Employed fulltime	97	19.4
Employed part-time	106	21.2
Unemployed	233	46.6
Homemaker	11	2.2
Student	29	5.8
Receiving a disability grant	7	1.4

	Number of respondents (n=500)	% of total sample
Retired	17	3.4
Annual family income		
Less than *ZAR10 000	203	40.6
ZAR 10 001 – ZAR40 000	205	41.0
ZAR 40 001 – ZAR 80 000	57	11.4
ZAR 80 001 – ZAR 110 000	20	4.0
ZAR 110 001 – ZAR 170 000	8	1.6
ZAR 170 001 – ZAR 240 000	4	0.8
ZAR 240 000 and above	3	0.6
Prevalence of common mental disorders		
Major Depressive Disorder	72	14.94%
Persistent Depressive Disorder	36	7.47%
Generalized Anxiety Disorder	17	3.53%
Acute stress disorder	2	0.41%
Posttraumatic stress disorder	25	5.19%
Alcohol Use Disorder	98	20.33%

* ZAR 14.76 = 1USD at June 2016 prices

Table 3
Prevalence of suicidal ideation and behaviours among persons seeking HIV testing (N=500)

	Male		Female		Total		X ²	p
	n	%	n	%	n	%		
Suicidal ideation (n=482, missing data = 18)	177	76.96%	188	0.746	365	75.73%	0.362,	.547
	39	16.96%	48	19.05%	87	18.05%		
	3	1.30%	7	2.78%	10	2.07%		
	11	4.78%	9	3.57%	20	4.15%		
Suicidal behaviour (n=500)	0	0.00%	6	2.33%	6	1.20%	2.268	0.132
	4	1.65%	4	1.55%	8	1.60%		
	11	4.55%	15	5.81%	26	5.20%		

Table 4

Parameters for logistic regression analysis to investigate the relationship between demographic factors and food insecurity as predictive variables and suicidal ideations as the criterion variable

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1						
(Constant)	.215	.223			.961	.337
Age	-.002	.002	-.043		-.785	.433
Gender	.015	.040	.017		.365	.715
Race	-.011	.073	-.012		-.149	.882
Marital status	-.022	.013	-.094		-1.770	.077
Living situation	.018	.019	.044		.938	.349
Educational level	.014	.023	.030		.614	.540
Employment status	.019	.010	.090		1.884	.060
Annual family income	-.014	.020	-.036		-.730	.466
Place of Birth	.044	.029	.070		1.515	.130
First Language	-.045	.037	-.100		-1.230	.219
2						
(Constant)	.061	.482			.126	.900
Food insecurity	.021	.023	.137		.938	.353

Model 1: Age, gender, race, marital status, living situation, education level, employment status, annual family income, place of birth, first language

Model 2: Model: Household food insecurity

Table 5

Summary statistics for the regression analysis in which the relationship was investigated between demographic factors and food insecurity as predictive variables and suicidal ideations as the criterion variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	df2	
1	.194	.038	.017	.42615	.038	1.784	10	457	1.938
2	.137	.019	-.003	.79997	.019	0.879	1	46	2.473

Model 1: Age, gender, race, marital status, living situation, education level, employment status, annual family income, place of birth, first language

Model 2: Household food insecurity

Association between common mental disorders and suicidal ideation among persons seeking HIV testing (N=500)

Table 6

		Suicidal ideation		X ²	p	OR	95% CI
		Yes	No				
Depressive disorders (n=482)	Yes	46	41	47.24	0.00	5.1	3.038–9.641
	No	71	324				
Generalised Anxiety Disorder (n=459)	Yes	10	5	15.77	0.00	6.9	2.129–24.035
	No	99	345				
Trauma and stress related disorders (n=482)	Yes	15	11	16.697	0.00	4.73	1.977–11.432
	No	102	354				
Alcohol Use Disorders (n=472)	Yes	35	57	17.046	0.00	2.797	1.644 – 4.755
	No	82	308				

Table 7

Parameters for all the regression analysis to establish the association between past suicide attempt, depressive disorders, generalised anxiety disorder, trauma and related disorders, and substance use disorders, with suicidal ideation

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
1	(Constant)	.221	.020		10.945	.000
	Past suicide attempt	.075	.022	.159	3.451	.001
2	(Constant)	.169	.021		8.077	.000
	Past suicide attempt	.052	.021	.110	2.458	.014
	Depressive disorders	.327	.050	.292	6.507	.000
3	(Constant)	.162	.021		7.755	.000
	Past suicide attempt	.053	.021	.112	2.532	.012
	Depressive disorders	.304	.050	.271	6.041	.000
	Generalised anxiety disorder	.349	.106	.146	3.301	.001
4	(Constant)	.156	.021		7.472	.000
	Past suicide attempt	.051	.021	.108	2.448	.015
	Depressive disorders	.285	.051	.254	5.610	.000
	Generalised anxiety disorder	.313	.106	.131	2.937	.003
	Trauma and stress related disorders	.193	.084	.103	2.290	.023
5	(Constant)	.132	.022		5.961	.000
	Past suicide attempt	.051	.021	.108	2.462	.014
	Depressive disorders	.267	.051	.238	5.258	.000
	Generalised anxiety disorder	.310	.106	.129	2.933	.004
	Trauma and stress related disorders	.187	.084	.100	2.242	.025
	Alcohol use disorder	.138	.047	.129	2.959	.003

Model 1: Past suicide attempts as predictors of suicidal ideation

Model 2: Depressive disorders as predictors of suicidal ideation

Model 3: Depressive disorders and anxiety disorders as predictors of suicidal ideation

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Model 4: Depressive, anxiety and trauma-related disorders as predictors of suicidal ideation
Model 5: Depressive, anxiety, trauma-related and substance use disorders as predictors of suicidal ideation

Table 8

Summary statistics for the regression analysis to establish the association between past suicide attempt, depressive disorders, generalised anxiety disorder, trauma and related disorders, and substance use disorders, with suicidal ideation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.159 ^a	.025	.023	.42102	.025	11.907	1	457	.001	
2	.329 ^b	.108	.104	.40318	.083	42.335	1	456	.000	
3	.359 ^c	.129	.123	.39887	.021	10.895	1	455	.001	
4	.373 ^d	.139	.131	.39703	.010	5.242	1	454	.023	
5	.394 ^e	.155	.146	.39368	.016	8.757	1	453	.003	1.952

Model 1: Past suicide attempts as predictors of suicidal ideation

Model 2: Depressive disorders as predictors of suicidal ideation

Model 3: Depressive disorders and anxiety disorders as predictors of suicidal ideation

Model 4: Depressive, anxiety and trauma-related disorders as predictors of suicidal ideation

Model 5: Depressive, anxiety, trauma-related and substance use disorders as predictors of suicidal ideation